DECEMBER 1957

Traffic Safety

FORMERLY PUBLIC SAFETY

A NATIONAL SAFETY COUNCIL PUBLICATION

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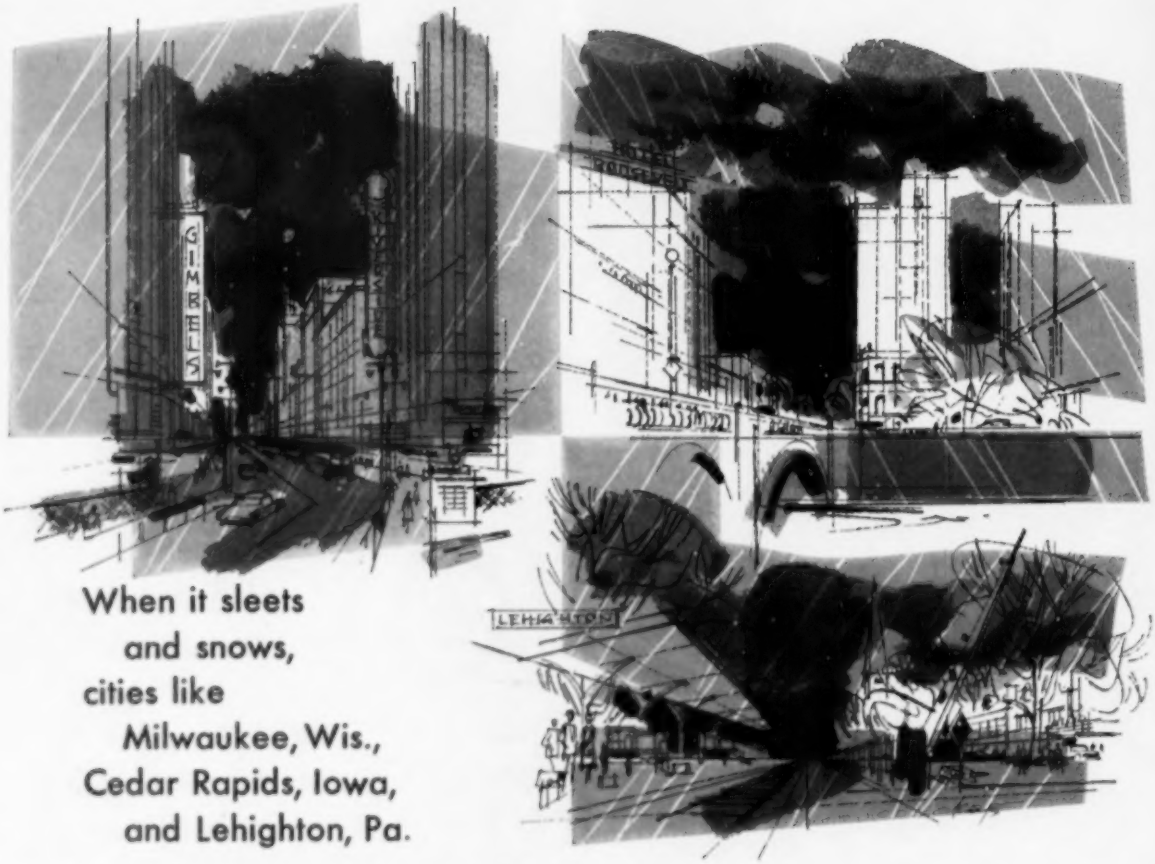
32 PAGE RESEARCH REVIEW

ARE COURTS CODDLING YOUNG DRIVERS?

also in this issue . . .

FACTORS IN SAFE DRIVING

HEALTH - VISION - EMOTION



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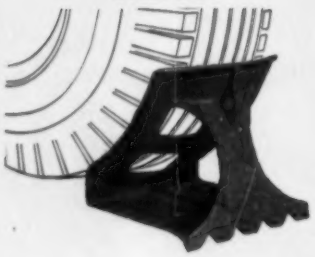

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Circle Item No. 4—Reader Service Card

MAIL BAG

Liked Sheaffer-Kearney Piece

Dear Sir:

Captain Singleton Sheaffer and Paul W. Kearney are to be congratulated on their article, "Life and Death on the Turnpike." (Oct. TS). Too often articles on traffic safety fall into a monotonous repetition of statistics. This article was stimulating, interesting and told its message in a very convincing manner.

Please let us know if reprints of this article are to be made available since we would like to have all of our employees read it.

James T. Witten, Safety Director,
American Factors, Limited,
Honolulu, Hawaii

Dear Sir:

May I have a reprint copy of the October article by Captain Singleton Sheaffer, Pennsylvania State Police—"Life and Death on the Turnpike."

A. H. Hallam, Supvg. Engineer
Sun Insurance Co. of New York

Editor's Note: Sorry. No reprints planned. But *Reader's Digest* for November, 1957 reprinted the article.

Dear Sir:

The numerous excellent public information and educational features contained in TRAFFIC SAFETY magazine make it of interest for general reading as well as inspiring and informative for those promoting or responsible for safe conditions on streets and highways. We only wish we were able to purchase subscriptions for each of our members.

Would like to see one or more articles on school driver training programs—not how they operate, but how public interest can be promoted to the point where they will be undertaken.

Also possibly a few more figures on Canadian accident facts. But right now, it's the best of its kind we have seen.

Stanley A. Ward
Chairman, Moose Jaw Safety Council,
President, Saskatchewan Trucking
Safety Council, Moose Jaw, Saskatchewan, Canada.

Dear Sir:

On Route 41 between Sharon and Lakeville, Conn. a few days ago, someone found a turtle injured by a car.

Hoping it was still alive, he placed the little animal gently in the grass and in so doing, noticed something written on the turtle's shell. The message, carefully engraved in the carapace read:

"Slow Down and Live."

Edward D. Fales, Jr.
Lime Rock Station, Conn.

Traffic Safety

FORMERLY PUBLIC SAFETY

A NATIONAL SAFETY COUNCIL PUBLICATION

Volume 51 Number 6 DECEMBER 1957

Reg.U.S. Pat. Off.

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TRAFFIC SAFETY is dedicated to the prevention of traffic accidents through the presentation of objective information and responsible opinion to official agencies, public support groups and the motor transportation industry. The views expressed do not necessarily reflect the beliefs or policies of the National Safety Council, but they are presented in the conviction that the pressing social problem of traffic accidents can best be resolved through freedom of expression and open debate.

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BETWEEN STOPS

IN DEALING with emotional factors in safe driving, Dr. Turrell (in this issue) says: *"The non-accident subjects were more oriented toward religious values and less toward aesthetic and theoretical values than the high-accident subjects."*

In other words, there is a spiritual side to accident prevention that depends on a person's standards and attitudes and his discipline of self.

Before we can have traffic control, we must have self control.

The moral aspects of traffic accident prevention are getting more attention these days.

Latest step in this direction is publication of "He Rides Beside You," an anthology of sermons, editorials, prayers and poems, edited by Ona Belknap and Dan Hollingsworth. Publisher is Stromberg-Allen, Chicago and it sells for $1. It's a must for that safety library.

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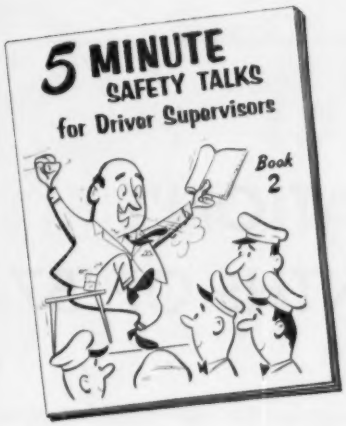

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What does Safety Really Mean?

Some common misconceptions about the meaning of safety and a point of view that puts control of accidents in our hands.

Some Simple Arithmetic

The arithmetic of traffic can be as useful to a driver as the ability to make change for a dollar bill. An easy formula for miles per hour and feet per second.

Position Is Everything

There are still plenty of narrow highways that leave little room for "center stripe drivers." An aiming point helps you "know" where your right wheel is at all times.

Help!

Why send for help before rendering aid to the injured? Here's the reason and a sure fire method of getting the assistance you need fast.

First Aid in Five Minutes

If you don't know, you can do an injured person more harm than good. But there are minimum things you can do until expert medical aid arrives.

Disaster

Develop a mental disaster plan. No two situations are alike. But there are two principles that are practically axiomatic when faced with disaster.

What We Inspect

A driver's best contribution to good maintenance is thorough pre-departure inspection. Organize it properly so you can do it thoroughly and fast.

About Our Insurance

The insurance company pays claims with our money. What every driver should know about how a good safety record affects our insurance costs.

Fire

How to prevent fires and put them out should they happen. Electrical fires, engine fires, tire fires, and cargo fires and how to treat them.

Tough Luck

Advice about leaving your troubles at home is like telling a man to stop scratching an itch. What a professional driver should do when tough luck hits.

Resentment Comes Naturally

There are some things we should resent. But there are blind resentments that can lead us into traffic tangles. Some sage advice on how to keep our resentments sorted out.

You've Had an Accident

There are four basic things a driver should THINK about immediately after an accident. He has to DO many things. But there are only four things he must REMEMBER in order to do them.

Send for your copy of "Book 2, Five Minute Safety Talks for Driver Supervisors" today.

Prices are as follows:

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ABOUT THE AUTHOR:

These talks were prepared by Russell FitzPatrick, one of today's most colorful, original, and authoritative writers on the subject of driver selection, training and supervision, and the problems of motor fleet management. Now an independent consultant on fleet operations, FitzPatrick was on the faculty of Texas A. and M. College where he taught courses in fleet operation. He has appeared as an instructor on many fleet supervisor training courses throughout the country and has had wide practical experience in the field of fleet safety supervision.

SAVE 800 LIVES ON NATION'S HIGHWAYS IN FIRST 9 MONTHS OF '57

EIGHT HUNDRED lives were saved on the highways of America in the first nine months of this year.

This encouraging improvement in the nation's traffic toll was climaxed by a 9 per cent drop in September—the sharpest monthly decrease since the downward trend began last September.

September was the ninth time the toll has come down or remained unchanged in the last 10 months.

The death toll for the first nine months of this year was 28,110, against 28,910 for the same period last year—a decrease of 3 per cent.

The September toll was 3,380, as compared with 3,710 for September last year.

Part of the September drop was attributed to the same factor that was blamed for a 5 per cent rise in the August toll—a calendar shift of the Saturday of Labor Day weekend from September in 1956 to August in 1957.

Without this shift the toll would not have risen in August or dropped so sharply in September. The combined toll for August and September was 3 per cent below the combined total for the same two months last year.

The traffic trend in the country today is encouraging, and drivers, pedestrians and traffic enforcement officers are to be congratulated on reducing the toll by 800 in nine months.

If this rate of improvement can be maintained the rest of the year, more than 1,000 lives can be saved on the highways in 1957. Everyone can help reach this goal.

Travel figures are available for only seven months. At that time they showed a 4 per cent increase over 1956. For those same months deaths were down 3 per cent, producing a mileage death rate (details per 100,000,000 miles) of 5.5. This was the lowest rate for those months in the nation's history and compared with 6.0 for the same period in 1956.

Of 47 states reporting for September, 27 had decreases in deaths, one reported no change and 19 showed increases. For nine months, 28 states reported decreases, three had no change and 16 showed increases.

Reporting cities for September indicated a decrease of 16 per cent in deaths, compared to the nationwide decrease of 9 per cent.

For nine months the same cities had a decrease of 4 per cent in deaths, compared to a 3 per cent decrease for the nation as a whole.

Of 618 reporting cities in September, 134 had decreases, 386 reported no change and 98 showed increases. For nine months, 249 cities had decreases, 142 showed no change and 227 reported increases.

In September 456 cities had perfect records. The three largest were St. Paul, Minn., (311,300), Providence, R. I., (248,700), Wichita, Kan., (224,700).

For nine months 143 cities still had perfect records. The three largest were Lynn, Mass., (99,000), Rock Island, Ill., (49,500), and Ann Arbor, Mich., (48,300).

To Page 30

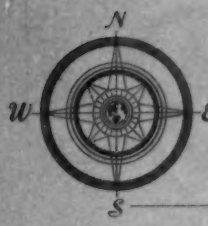
Leading at the End of Nine Months

Cities

Louisville, Ky.	— 49%	Kansas City, Mo.	— 23%
Tampa, Fla.	— 48%	Worcester, Mass.	— 18%
Milwaukee, Wis.	— 46%	Detroit, Mich.	— 17%
Syracuse, N. Y.	— 45%	Baltimore, Md.	— 16%
Boston, Mass.	— 41%	Oakland, Calif.	— 15%
Fort Worth, Tex.	— 41%	Birmingham, Ala.	— 15%
Memphis, Tenn.	— 35%	Omaha, Neb.	— 14%
Richmond, Va.	— 35%	Philadelphia, Pa.	— 12%
Seattle, Wash.	— 30%	Chicago, Ill.	— 8%
Norfolk, Va.	— 30%	Pittsburgh, Pa.	— 7%
St. Louis, Mo.	— 27%	San Diego, Calif.	— 5%
St. Paul, Minn.	— 26%	Portland, Ore.	— 3%

States

Idaho	— 26%	Connecticut	— 9%
Montana	— 24%	Wyoming	— 8%
North Dakota	— 20%	Wisconsin	— 7%
Kansas	— 18%	Alabama	— 6%
Georgia	— 17%	Mississippi	— 6%
Michigan	— 15%	Utah	— 5%
Florida	— 14%	Texas	— 4%
Maine	— 14%	New Hampshire	— 4%
Missouri	— 12%	Delaware	— 4%
Massachusetts	— 11%	Indiana	— 3%
Tennessee	— 11%	South Dakota	— 3%
Colorado	— 11%	North Carolina	— 2%
Nebraska	— 10%	Washington	— 2%
Louisiana	— 9%	California	— 1%



Today's Traffic

LOOKING AHEAD

Dixie flag clears way

A man living near the United Nations headquarters in New York noted police were especially considerate of cars bearing foreign emblems. He dug up a little flag and attached it to his own car. For several months he was accorded rights-of-way and parking privileges of an Oriental potentate —until somebody recognized the flag as being that of the Confederate States of America.

Drive to Panama soon

The Inter-American Highway will be open to traffic next January for 2,725 miles from Laredo, Texas, to San Isidro in southern Costa Rica. The Bureau of Public Roads, in making this announcement, forecasts that by early 1959 the entire highway from Laredo to the Panama Canal should be open for 3,200 miles. The Pan-American Highway (of which the Inter-American Highway is a part) will eventually enable a motorist to drive from Alaska to southern Argentina.

Allstate finds driver training pays

Young high school-trained drivers are better insurance risks than their untrained counterparts, according to Judson Branch, president of Allstate Insurance Company. Branch said that since introducing a plan in 1953 allowing premium discounts of five to 15 per cent to young drivers who have successfully completed approved courses, his company had compiled enough information to indicate that this group has fewer accidents and is a better risk than those untrained.

Electronics to stop cars of future

Within 20 years a car approaching a red traffic light will stop without any help from the driver. This is the prediction of Henry A. Barnes, Baltimore, Maryland, traffic director, who thinks this forced obedience will result from use of electronic beams.

Drivers will obey speed limits and other traffic regulations, he said, because controls for movement and speed of vehicles will be built in on car dashboards. In areas of traffic regulation, vehicles will be operated automatically by radio beams directed at them.

Perfect safety record

Moosehart, child city of the Loyal Order of Moose, points with pride to its enviable traffic safety record. In the history of Moosehart (44 years) no child has ever been injured in a traffic accident on the streets of this unique city.

Jilt that violator

The traffic problem got into the advice-to-the-lovelorn columns recently when a correspondent appealed to Ann Landers for advice on whether or not to drop a suitor who couldn't keep his temper in traffic.

Said Ann: "The driver who blows his head off, cuts in and crowds, and refuses to give a pedestrian a break would probably treat a

wife in the same inconsiderate manner. The person (male or female) who has frequent hassles with the law because of irresponsible driving and has a high rate of accidents is not only a poor insurance risk, but also a poor marriage risk."

Penn Pike much safer this year

A reduction of 54.3 per cent in fatalities on the Pennsylvania Turnpike for the first 6 months of this year, compared with the same period last year, has been announced. Sixteen persons lost their lives in Pike accidents this year while 35 fatalities occurred in crashes during the first half of 1956. The estimated 790,800,000 vehicle miles traveled on the Turnpike in this period represented an increase of 16.7 per cent.

Phony fireplug backfires

A Chicago hardware dealer thought up a way to solve his parking problem. He constructed a phony fire plug and placed it in front of his store to insure himself a convenient parking place. When parking his car, he simply hid the fake hydrant in the back seat. The trick worked fine—until firemen discovered it. A magistrate slapped a $100 fine on the ingenious hardwareman.

More traffic engineers

The number of traffic engineering students in the nation's schools has increased by 75 per cent in the past two years. This fact was reported to the 27th annual meeting of the Institute of Traffic Engineers by Carlton C. Robinson of the ITE's Traffic Engineering Education Committee. In the same period the number of schools offering traffic engineering courses has risen by 55 per cent.

Highway forces relocation of ghosts

This highway rights-of-way business gets more complicated all the time. An old gentleman in Arizona refused to leave his home until assured that the State Highway Commission would move the family ghosts to his new dwelling.

After they had loaded the furniture on moving day, the highway crew backed the van up to the owner's home and rushed from room to room until they had chased all the ghosts into the van. Then they quickly locked the doors and moved furniture and ghosts to the new house.

Now you can see that horn

The Ford Motor Co. has developed an electronic safety device that permits a motorist to "see" the horn blast of a car approaching from the rear. The device converts the horn blast into an electrical impulse that flashes a warning light on the instrument panel.

Slides teach perception

A program to make motorists "perception conscious" is being undertaken by the Center for Safety Education at New York University. Perception, according to Dr. Leon Brody, director of research and publications at the Center, is an awareness and comprehension of what is taking place in a motorist's field of vision.

To make drivers "perception conscious," the Center has simulated and photographed common hazards which lead to accidents. Prepared as slides, the photographs are being shown in high school driver education classes, university courses and driving clinics.

TRAFFIC TAKES THE CAPITAL STAGE

Officials to Appraise Traffic Programs and Establish Action Program Priorities

President's Committee for Traffic Safety to sponsor year-end conference of public officials in Washington, D. C., December 9-10.

Lag in stepping up official traffic control programs to be studied and priorities for immediate and long-range needs established via advance studies of annual inventories as yardsticks.

No observers will be admitted to the workshop conferences as state and local officials assess needs and recommend priority measures.

AMERICA'S public officialdom will sit down together in Washington, D. C., December 9 and 10 to measure progress in state and local traffic control and accident prevention programs and determine how well they stack up with the Action Program developed by a series of President's Conferences on Highway Safety and endorsed by all major safety organizations.

As you read these lines, state, county and municipal officials all over the Nation are measuring progress in traffic accident prevention. For the most part, they are determining improvement or failures via the yardsticks of the Inventory programs of the President's Conferences.

With this advanced study as a basis, officials will determine immediate and long-range needs for traffic control and accident prevention; recommend steps which they believe should have priority, and indicate those for which they particularly need organized public support.

The Washington conference is sponsored by the President's Committee for Traffic Safety, of which Harlow H. Curtice, president of General Motors Corporation, is chairman.

Not more than 20 representatives of each organization of state and local officials invited to prepare a report, and a federal government group, will be invited to the conference. All must be public officials.

Members and staff of the President's Committee for Traffic Safety and its Advisory Council, plus the staff-level subcommittee charged with carrying out details of the conference, will serve in administrative and advisory capacities. No observers will be admitted to the conference.

THE PRESIDENT WILL ADDRESS OFFICIALS

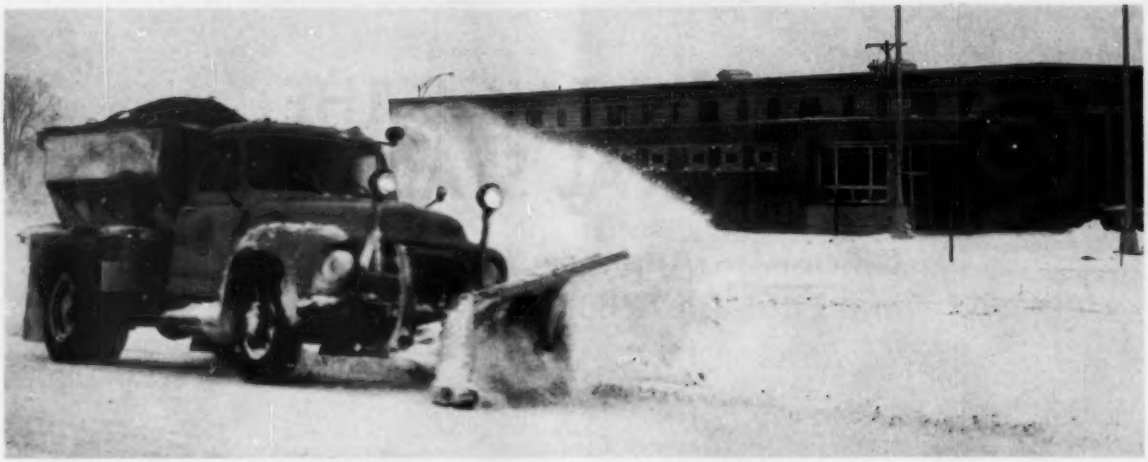
In a series of workshops, reports from many national organizations will be considered—one for each subject category of the Action Program.

It is expected that President Eisenhower will address the conference. Governor William G. Stratton of Illinois, chairman of the Governor's Conference, will play an important role in the meeting.

Workshop sessions at the conference will include: Accident Records, Education, Enforcement-Courts and Enforcement-Police, Engineering, Laws and Ordinances, Motor Vehicle Administration, Official Coordination and Intergovernmental Cooperation.

Each workshop will develop a report which will establish a priority of immediate and long-range needs in its field with emphasis on those items for which public support is needed. The final conference report will be developed from the workshop findings.

This assessment of needs will form the basis for four regional public support conferences to be held in April and May of 1958.



OHIO TURNPIKE WINTERIZES

Assaulted by 66 major storms during its first winter of operation, the Ohio Turnpike plans for the worst and gets the best — in travel conditions.

WHEN a driver hands his hard-earned money to the attendant at a toll road plaza, he expects the best in travel conditions. Whether it is July or January, he expects July speeds, and if he doesn't get them, he just might keep his money and do his traveling elsewhere.

To stay ahead of the inevitable snowstorms and icy spells, the men who operate our toll roads plan for Arctic weather when most of us are planning camping trips and taking precautions against sunburn.

One organization that looks ahead to outwit Winter is the Ohio Turnpike Commission. A maintenance building is located every 30 miles along the Ohio Turnpike. A maintenance section, with abrasive stockpiles, chemical stockpiles, and "hot piles," as the treated abrasives stockpiles are called, is housed in each of the eight maintenance buildings. A crew of 18 mans each section.

When snow and ice threatens, the organization really goes into action. Two crews, each putting in 12 hours on a shift, protect the motorist around the clock. Supervisors work the emergency shift hours, too. The Turnpike's managers have no intention of wearing out their key people by working them two shifts.

Every foreman has a list of skilled equipment operators who can be called upon as the need arises.

After a storm, each piece of equipment is checked. If major repairs are needed, this equipment is moved to division headquarters where the master mechanic and his crew handle the work. Turnpike mechanics are constantly improving techniques. On one job — changing truck bodies from dump to hopper—they have reduced the average time from eight hours to two.

In the Ohio Turnpike's annual war against Winter, the "big gun" is sodium chloride. Calcium chloride and abrasives are used too, but it is rock salt that does most of the ice melting job.

The calcium chloride is used primarily to keep stock piles of abrasives unfrozen.

The system most used is straight application of chemicals, either sodium chloride alone or mixed with calcium chloride. Abrasives are applied with variable amounts of either or both chemicals. The type of abrasive used varies with the area and availability. Cinders are used on the eastern portion, and limestone screenings or slag on the remainder. Silica sand is applied in limited quantities throughout.

Storage of the chemicals and abrasives is a major problem. At first, the Turnpike officials bought both bag and bulk calcium. Later, they analyzed their loss from caking, and decided that the cost of bulk shipments was so much lower that they could afford to take a small caking loss. Rock salt is also stored outside without excessive loss. In piles of 200 to 250 tons, it crusts about two or three inches.

The next step in storage is toward self-loading storage bins and shelters. Turnpike engineers are studying the best, the most efficient, and the most economical types of storage equipment.

Winter-weary Turnpike employees counted 66 major storms during the 1955-56 winter, but the weather bureau offered them no comfort. That was a "normal" winter, the weather

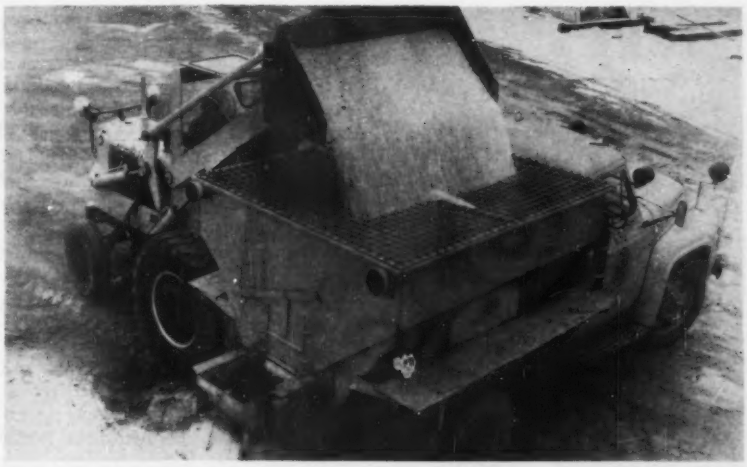
men said. Supplies of chemicals and abrasives were low, and much equipment was in need of repairs when Spring finally came.

While they were resting, the Turnpike workers began laying in new supplies of chemicals and abrasives, repairing equipment, and stocking spare parts. They went into the 1956-57 season with 33,000 tons of abrasives, 7,000 tons of sodium chloride, and 3,850 tons of calcium chloride.

Supplies and equipment were readied for the snow and ice season, but the preparations didn't end there. The first winter's instructions were mostly oral, but before the second year's operations began, the plan of attack was in writing and was being rehearsed.

First, vehicles were assigned. Vehicle assignment cards were prepared and mounted under clear plastic on the dash. Any operator could then step into a truck and perform the vehicle assignment.

Next, all personnel were briefed on the plan and vehicle assignments. Finally, early in November, everyone fell to for a dry run. The radio system carried the orders to all maintenance building custodians. The custodians telephoned foremen, and the foremen in turn ordered all men to report to their stations. The trial run was considered an invaluable experience for everyone, and turned up several flaws that were remedied before final plans were made for the winter.



SPREADER TRUCK RELOADS

The Turnpike's motorized equipment includes 16 8-yard trucks, 48 5½-yard trucks, eight motor graders, and 18 front end loaders.

THREE BASIC SNOW AND ICE CONTROL PROCEDURES

- **CHEMICAL** — Sodium chloride or a salt-calcium chloride mixture at the rate of about four hundred pounds per mile.
- **ABRASIVE** — Treated abrasives, with 100 pounds of calcium chloride per cubic yard of abrasives, at the rate of one cubic yard per mile of two-lane roadway.
- **PLOWING** — Front and wing plows; two vehicles in tandem, first vehicle plowing left, and second plowing right one-half mile behind.

PATCH ICE AHEAD

When road conditions require, speed limits may be changed on the Ohio Turnpike signs by overlays.

SPEED SUITS CONDITIONS

Within a few seconds, the speed limit is changed to a level that corresponds to conditions just ahead.

MICROWAVE RADIO TOWER
Radio makes a tight unit of the toll road's far-flung operations.

The written plan is constantly being improved. After each storm, the foreman makes out a report that includes:

1. Information on the weather forecast.
2. Actual weather conditions experienced.
3. Plan or plans followed in fighting snow and ice.
4. Quantities of materials used.
5. Man-hours.

These reports are reviewed by the maintenance engineer, and out of them come revisions of the plan to meet new conditions.

A vital tool in the close-working operation of the Turnpike is the radio system. The 241-mile roadway with its maintenance buildings, toll plazas, and moving vehicles is tied tightly to administrative headquarters by five separate channels of VHF and microwave radio. Over half of the snow and ice control trucks have mobile radios. The others operate near toll plazas or maintenance buildings where drivers can use the stationary radio equipment.

In planning a defense against an opponent who throws 66 potential knockout punches in a match, it is a decided advantage to have the punches telegraphed. On the Ohio Turnpike, the men who must know what is coming use both governmental and commercial weather forecasters. Five times a day the latest forecast comes over the air from Turnpike headquarters. Personnel on duty in maintenance buildings can alert crews when the forecast carries a threat. Toll plaza workers hand printed slips to motorists warning them of probable conditions ahead.

When a storm hits, weather information flows both ways on the Turnpike radio. Each maintenance section reports roadway and weather conditions to the Administrative Building. Headquarters keeps charts current, and rebroadcasts the total picture to all installations. With last-minute information available, foremen direct trucks to trouble spots, superintendents shift trucks from one section to another, or the maintenance engineer can order modification of the entire snow and ice control system then in effect.

The maintenance forces of the Turnpike don't wait for the pavement to ice up before they go to work. Whenever snow or freezing rain threatens, one or two trucks per section begin to patrol and watch for developments. The trucks are loaded with salt or a 33-67 mixture of salt and abrasives, ready to treat ice or sticking snow conditions as they develop. When snow or icing starts, the patrolling truck starts spreading its load, and radios headquarters, which alerts other crews. The entire turnpike can be covered with salt within forty-five minutes and with abrasives within two hours.

Wise to the ways of winter after two tough seasons, the men who keep the Ohio Turnpike open are in fighting trim for the third round. They feel they have earned the right to boast, "Let it come, we're ready for anything it wants to throw at us."

TREATMENTS FOR FOUR BASIC STORM CONDITIONS

condition	treatment
SNOW, SLEET OR FREEZING RAIN WET PAVEMENT TEMPERATURE 25 F OR ABOVE AND RISING	Initial treatment—application of sodium chloride at 400 pounds per mile. Later, if snow or ice has accumulated, pavement plowed to ¼" and treated with 33-67 mixture of salt and treated abrasives at rate of 600 pounds per mile.
DRY SNOW DRY PAVEMENT TEMPERATURE 25 F OR BELOW AND FALLING	Plow as soon as feasible; repeat frequently; packed snow or icy spots treated with 33-67 salt-treated abrasives.
SNOW OR FREEZING RAIN PAVEMENT WET OR STICKY TEMPERATURE 25 F OR BELOW AND FALLING	Initial treatment—application of salt-calcium chloride mixture using 400 pounds of calcium chloride per cubic yard of salt spread at the rate of 400 pounds per mile. Later, if snow or ice accumulates, pavement is plowed to ¼" and 33-67 treated abrasive spread at rate of 600 pounds per mile.
SNOW, FREEZING RAIN OR NO PRECIPITATION PAVEMENT COVERED WITH PACKED SNOW OR ICE TEMPERATURE 10 F OR BELOW	Initial treatment—specially treated abrasives at rate of one cubic yard per mile; later, when moisture appears, 33-67 salt-calcium chloride is spread at rate of 400 pounds per mile. When condition becomes slush, it is removed with blades.

DRIVER TRAINING PROGRAMS BOOM

State aid to schools, lower insurance for graduates, and more public support—these three explain growth of driver education programs during past ten years.

TWENTY states achieved the Award of Excellence for the extent and quality of their driver education programs conducted during the 1956-1957 school year, the board of judges for the Tenth Annual National High School Driver Education Award Program announced.

The states selected for the Award of Excellence are: Arizona, California, Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, New Jersey, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, Vermont, Virginia, and Wisconsin.

Awards of Honor were earned by three states: Missouri, and New Hampshire and Texas. An Award of Merit was won by Maine. In addition, California and North Dakota were given Special Citations for Driver Education Attainment of their private and parochial schools in 1956-1957.

Thomas N. Boate, manager of the Accident Prevention Department of the Association of Casualty and Surety Companies, which sponsors the national driver education award program, cited three factors as significant to the growth of this program during the past decade.

They are: A steady gain in the number of states offering financial aid to high schools meeting national standards of approved course requirements; the lower premiums offered by most insurance companies for graduates of driver education courses meeting such national standards, and an increase in the number of organizations and groups supporting the program.

"This year marked another milestone in the steady growth of the Award Program when the number of students receiving classroom instruction topped the one million mark for the first time," Mr. Boate said. "The total was 1,123,164. It is interesting to note that the increases in 1956-1957 of 199,334, or 21.5 per cent, was almost exactly the figure of the total enrollment for 1947-1948, the first year of the Award Program.

"In large part, this growth can be traced to 14 states now extending financial aid to high schools which conduct driver education courses of accepted standards, that is, 30 hours of classroom instruction and six hours of practice driving on the road. California, Connecticut, Delaware, Florida, Illinois, Louisiana, Maine, Michigan, New Hampshire, North Carolina, Oregon, Pennsylvania, Utah and West Virginia."

The Award Program for driver education achievement is designed to encourage a state's public schools to (a) include driver education as an integral part of the curricular offering, (b) extend their facilities so that instruction is available to all students, and (c) improve the quality of existing courses. Awards are granted to states for the purpose of: recognizing the accomplishments of local, regional and state educational agencies as well as the accomplishments of state and other organizations which are active in this area, and to gather information in order to provide states with a national report on the progress of high school driver education.

Chairman of the board of judges was Dr. Virgil M. Rogers, dean of the College of Education of Syracuse University. Judges also included: Dr. Harold K. Jack, supervisor of health, physical education, safety and recreation, State Department of Education, Richmond, Va.; Very Rev. Msgr. William E. McManus, superintendent of schools, Archdiocese of Chicago; Dr. Herbert J. Stack, Center for Safety Education, New York University; Dr. Wayne P. Hughes, director of school and college division, National Safety Council, Chicago; Norman Key, National Commission on Safety Education, National Education Association, Washington, D. C.; R. B. Norman, president, National Association of Secondary School Principals, Amarillo, Texas.

William H. Egeln, regional director, National School Boards Association, Inc.; Robert L. Marshall, president, American Driver and Safety Education Association, Kansas City, Mo.; Jesse T. Anderson, Superintendent of Education, State Department of Education, Columbia, S. C., and R. C. Salisbury, director of safety division, Motor Vehicle Department, Madison, Wis.

The awards, wood-mounted bronze plaques, will be presented to the governors of the states at ceremonies to be held in the near future.

ARE COURTS CODDLING YOUNG DRIVERS?

Do current methods of dealing with young violators encourage repeated offenses? Here is a sample of judicial opinion on this controversial question.

EACH year between two and three million American youngsters reach driving age, and within a short time of attaining this distinction, an alarming number of them come to grips with the law because of traffic violations.

The problem of how to deal with these youthful offenders is a burning judicial issue at the moment—one that is expected to be vigorously debated at traffic court conferences sponsored by the American Bar Association and other associations during the coming year.

It is obvious that the disposition of every juvenile violator case has significance far beyond the meting out of punishment for a single traffic offence.

Each young defendant is a driver with from 40 to 50 years of driving ahead of him. The treatment he receives in his first brush with the law will greatly influence his attitude toward law and order throughout his entire life.

How, then, do we handle this VIP—the American citizen of tomorrow—when he makes his first misstep in traffic?

In the opinion of many—we bungle the job badly.

In the years preceding World War II the number of youngsters driving cars was far below the number on wheels today. Consequently the number of violators was proportionately lower. At that time youthful violators of traffic laws were, as a matter of course, handled in the same manner as young violators of any law—primarily through the juvenile court.

But with the tremendous increase in youthful drivers following the war, the juvenile traffic violator problem assumed a separate identity. This turn of events prompted the Enforcement Committee of the President's Highway Safety Conference to make the following recommendation in 1949:

"It is strongly urged that laws be passed in the respective states permitting juveniles charged with traffic offenses to be tried in traffic courts."

The American Bar Association had in 1940 recommended that all juvenile traffic violators be handled in traffic court *except in cases involving a behavior problem.*

The thinking behind these recommendations centered mainly on the following points:

1. In some jurisdictions a traffic law violation is not considered a criminal offense. The juvenile court is a specialized court handling delinquency and dependency problems. Thus, unlike his adult counterpart, the juvenile traffic offender tried in this court suffers the stigma of delinquency. On the other hand, the juvenile court protects the culprit from publicity—a protection to which many believe he is not entitled.

2. Most traffic authorities are of the opinion that the disposition of all traffic cases calls for the experience of a qualified traffic judge. This experience is usually not available in the juvenile court. As a matter of fact, in many juvenile courts traffic offenders rarely face the juvenile judge. Their offenses are not considered serious enough to warrant the judge's attention, so they wind up before a referee, probation officer, or other similar official. They miss the sobering experience of facing a judge in formal court surroundings—an experience which does much to impress upon the young violator the gravity of his offense.

3. There is no such thing as a "right to drive." Driv-

ing is a privilege. If a person is considered old enough to be permitted this privilege, he should also be considered old enough to assume the consequent responsibilities.

Although the President's Conference recommendation was made eight years ago—and the juvenile traffic problem has grown tremendously during the intervening years—the majority of juvenile traffic cases are still being handled by juvenile courts.

It must be admitted that there can be no hard and fast rule for the disposition of these cases which is applicable to all communities. Localities differ in their judicial setups. Driver licensing age and other factors also vary throughout the country. But a satisfactory method can be worked out in any community that is willing to give enough thought and effort to the problem.

Baltimore is an example of a city that handles juvenile cases efficiently in a special session of traffic court known as the Teen-Age Traffic Court. Chicago has had success in handling them in regular sessions of the traffic court. Some cities have worked out a satisfactory system of referral between traffic court and juvenile court. But these run counter to the pattern. The treatment of the young driver who breaks the law leaves much to be desired in most communities.

There is mounting dissatisfaction—both judicial and lay—with this situation. Principally, the inconsistency of considering an individual an adult when he gets his license but a child when he runs afoul of the law is being severely criticized.

Because of this growing feeling that if a person is old enough to drive he is old enough to face up to the responsibilities driving entails, the editors of TRAFFIC SAFETY magazine recently conducted a survey.

Seventeen traffic court judges were asked the question: "Are Courts Coddling Young Drivers?" Here are the judges' answers.

Earle W. Frost, Judge,
Municipal Court, Kansas City, Mo.

Juvenile and teen-age traffic violators should be handled in our traffic courts like all other traffic violators. If juveniles are old enough to drive they are old enough to assume all the responsibilities of qualified drivers. If not, they are too immature to drive at all.

In Missouri the Juvenile Courts have exclusive jurisdiction under 17 years of age. Our Juvenile Court's Driver's Safety Workshop is doing a fine educational job but the handling of all traffic violators in traffic courts is necessary to secure uniformity, sufficient deterrent enforcement and the best prospect for future traffic safety improvement.

Our court cooperates with the Kansas City Southwest Youth Court (voluntary association of four schools), by requiring compulsory attendance in addition to (not as a substitute for) the regular court penalty, which over a six-year period has resulted in an estimated 75 per cent decrease in violations in this district.

Treating juveniles on an entirely different basis than adults may only emphasize the problem and defeat our efforts to make them realize that when they are old enough to drive, they must be grown up traffic *wise*.

James D. Gamble, Judge,
Corporation Court, Dallas, Texas

It has been my considered opinion and my experience that the manner in which I seem to best accomplish the desired result with this class of traffic violators is to docket such cases upon the regular traffic court docket. It is desirable to take some additional time in hearing the cases, and at the conclusion to call them before the bench and counsel with them individually regarding the seriousness or effect of the violation and possible consequences of such infractions in all respects.

Tom Bergin, Judge,
Municipal Court, Minneapolis, Minn.

It has always been my opinion that when a person is old enough to drive and operate a motor vehicle, any transgressions of the traffic law should be heard in the traffic court with adults.

This is a very controversial subject, but I feel that the placing of the juvenile on the adult level is preferable to the handling of the cases of juveniles separately in the juvenile court. I believe that the juvenile himself would prefer having his traffic court matters handled with the adult cases. As sometimes happens in a relatively minor case, the only punishment that can be meted out to the juvenile to act as a deterrent of any future violations is the suspension of his driver's license. For the same violation the adult would receive a small fine with no license suspension. This is inequitable and the juvenile feels it.

Turn Page

EXPERT OPINION was exchanged at this get-together of Judge Rosenthal, Mr. Economos, and Judges De Grief, Frost, Quillin, and Powers.

"Teenagers should be tried in special sessions"—Scherr

While there would be difficulty in assessing monetary penalties against a juvenile in that said penalties might have to be paid initially by the parent or guardian which would in a measure be placing the burden upon one other than the defendant himself, it would seem to be the only practicable manner of equalizing punishment. For more serious traffic violations a juvenile should stand in the same position as the adult in the event of a jail sentence.

Stanley Scherr, Chief Magistrate, Traffic Court, Baltimore, Md.

From my experience in the handling of thousands of teen-age motor vehicle offenders, I am of the definite opinion that their cases should be tried in a special session of the regular traffic court. My reason for saying this is that presiding over traffic offenses is almost a specialty, as it is most essential that the presiding judge be able to visualize how the offense occurred and to know what caused the teen-ager to commit his particular offense. This kind of vision helps to bring about a better understanding of teen-agers' actions in their handling of motor vehicles and enables the presiding judge to deal with the situation in a practical manner.

My reason for stating that they should be tried in a teen-age court, as distinguished from other criminal courts, is that the traffic offender differs from the type of people who comprise the average criminal court defendants, both in character and with respect to his state of mind. The traffic offender generally fails to appreciate either the meaning or the significance of his act. He does not think himself to be an enemy of society. In dealing with teen-age motor vehicle offenders the court should function not so much for the purpose of retribution, as with the view to dealing with teen-agers in such a manner that will teach them a lesson. To have these teen-agers, who in reality are our drivers of tomorrow, leave the court feeling thoughtful and cooperative indicates the best possible administration for traffic law enforcement.

However, it is most essential that teen-agers, in cases other than parking, be required to appear in court with their parent, and not be permitted to pay out their offense, as is the case in many jurisdictions. Experience has proved that in the majority of payable offenses where teen-agers are involved, it is the parent who pays the fine by mailing it to the court, with the result that the teen-ager has not learned where he has made his mistake, but to the contrary, the entire procedure is of little or no importance to him.

If a teen-ager is old enough to drive, he is old enough to appear in court in answer to the charge against him, standing on his own two feet to take the consequences of his act. So long as you can get the teen-ager in court accompanied by his parent, the average teen-ager will adhere to sound driving advice. In addition, investigation has shown that when a teen-ager is stopped by a police officer for a violation and is given a citation, or summons, the teen-ager's parent very seldom hears the story as it actually happened, with the result that the parent's attitude in many instances is that the child was "picked on" by the officer. This brings about contempt and disregard for law enforcement, but when the parent hears both sides of the case while appearing with his child in court, it does much to impress, not only upon the teen-ager, but upon the parent as well, the tremendous and magnificent job that the law enforcement officers are attempting to do in their all-out efforts to save life and property from wanton destruction.

Henry Hart, Municipal Judge, Midland, Mich.

Exuberant, somewhat rebellious youth, during the great change-over from adolescence to adulthood, create a problem for those who must judge and impose the penalties for their misdeeds. One method I can recommend in dealing with this problem is the Teen-age Traffic Court, which has been a definite help in handling this problem in Midland.

The most effective verdict for anyone charged with misconduct is a verdict of one's peers. If a doctor overheard himself censored by one not acquainted with the problems of his profession, he might be annoyed but would pay little heed. However, if his own medical association censored him or suggested changes in his professional conduct, the reprimand handed down would be most effective. The same with lawyers or bricklayers and with teen-agers. The voice of the teen-agers speaking through a teen-age jury expressing disapproval of a teen-age traffic offender's conduct is just as effective.

I find teen-age violators very truthful in relating what happened regarding the offense but many of them believe "the officer is picking on me" and the judge doesn't understand us." The teen-age jury certainly isn't going to "pick on" him and they probably "understand" him better than the judge, so he is deprived of these excuses in justifying his actions to his parents and himself. He is left with nothing but the realization that everyone, including a jury of his own kind, disapprove of his traffic actions and unless he wants to become an outcast he will have to conform to public opinion regarding traffic safety.

Frank A. J. Stodola, Judge, City Court, Hammond, Ind.

There is no question in my mind that modern day driving is an adult pleasure and responsibility. When accidents happen, the result is the same whether it be a sixteen-year-old or a sixty-year-old person in the automobile.

It is quite apparent to this Court that all teen-agers want to accept adult pleasure and responsibility. In view of that fact, it somehow does not seem proper that juveniles should be treated any differently for traffic violations than adults. To my mind, every case should stand on its own merits and if the evidence so indicates, a proper penalty should be imposed.

The automobile is the same instrument of pleasure, business or death, whether it be in the hands of a juvenile or of an adult. They must all conform to the same rules of the road, same regulations and responsibilities of driving.

We have as an adjunct of our court, a traffic school to which violators are ordered to attend, and it is apparent that almost all drivers need some education.

"Poll showed teenagers wanted to be treated as adults"—Drymalski

Roger Alton Pfaff, Judge,
Superior Court, Los Angeles, Calif.

The flagrant and repeated violations of traffic laws by an anti-social minority of teen-agers is directly attributable to the slipshod and coddling quasi-judicial procedures practiced in too many communities throughout the United States.

Juvenile traffic violators are judicial orphans, the hearing and disposition of their cases being delegated in many instances to non-judicial public officers who hold informal hearings and whose powers to correct are largely limited to enlisting the cooperation of the violators' parents.

Is it any wonder that these juvenile traffic violators have contempt not only for traffic laws but all law?

One simple and realistic solution would be to amend our Juvenile Court Acts to reduce the age defining "juvenile" to 16 years as in New York and most European countries.

Such an amendment would immediately bring such traffic violators within the direct judicial processes of a court. It would also do something more. It would stop the present farce of calling young men over sixteen "children" and treating them as incompetent and innocent infants unable to comprehend or be responsible for their anti-social and criminal acts.

Raymond P. Drymalski, Chief Justice,
Municipal Court, Chicago, Ill.

On January 3, 1956, the Municipal Court of Chicago opened for the first time its Central Traffic Court. Shortly after the opening of our Traffic Court, new procedures were adopted having as their functions aids to our Traffic Court Program. These were the Driver Improvement School and the Psychiatric Reference Bureau.

At the same time these agencies were initiated serious consideration was given to holding special sessions for teen-age traffic violators. In keeping with this thought a rather thorough study was made with reference to the Baltimore plan and their special court for teen-age traffic violators and also to the special program operated in Oak Park, Illinois. Obviously these systems, namely, the one in Baltimore, the one in Oak Park, and those in other municipalities are operating very effectively. The only reason Chicago did not adopt a specialized teen-age traffic program was that a poll of the teen-age motorists in the Chicago area very definitely indicated that they did not want a special teen-age traffic court but did want to be treated as adults. The argument simply stated was that if they were old enough to be given a license to drive they were old enough to be tried as adults.

It is for the foregoing reason that our court has not given special attention to teen-age violators but has included them as any other case that appears in our traffic courts.

Generally, I think that teen-agers charged with traffic violations should be accorded the same forum provided for their elders, with the following important exceptions:

1. Teen-age defendants should be required to appear in Traffic Court to answer charges, instead of being allowed to pay a fine in a violations bureau.

2. Chronic violators should be referred by Traffic Court to the special agencies or courts provided in the community for juveniles charged with delinquency.

This plan has the advantage of letting the teen-ager see our regular judicial process in action, and to share its drama as a responsible person among adults. At the same time, the plan provides special treatment for special cases, just as we refer certain adult offenders to the Court Psychiatrist or Probation Officer.

Philip B. Gilliam, Judge,
Juvenile Court, Denver, Colo.

Because the field of traffic is legislated on the local level there is found a great variance among the states as to licensing age and conditions upon which persons are licensed to operate motor vehicles. In Colorado persons 16 years of age and older are permitted to obtain licenses to operate motor vehicles. Recently the state legislature has passed a law permitting juveniles 14 years of age and older to obtain a license to operate motor scooters. There is no requirement for licensing of operators of bicycles in this state.

The procedure in this state has been, in regard to the 16-year-old operator of the motor vehicle, to handle him as all other adults licensed to operate motor vehicles are handled—in the Municipal Traffic Court. Those under 16 years of age operating motor vehicles without licenses were referred by the Denver Police Department to the Denver Juvenile Court for disposition. Our procedure here was to file petitions in delinquency against these youngsters. A working agreement with the municipal courts permits the transfer of a case by them to us upon the finding there that the issue of moral turpitude was involved in the particular traffic offense—even though the juvenile was over the age of 16. NOTE: Although the Juvenile Court has exclusive jurisdiction over juveniles 15 years of age and under, there is concurrent jurisdiction among the Juvenile, District and Municipal Courts over the juvenile between the ages of 16 and 18.

The question as to which court—Traffic, Juvenile or other—should hear these cases, must be determined on the basis of which court can be most effective in treating the violator. In the final analysis, each community must resolve this on the basis of its own local laws and facilities.

In concluding, I wish to stress that our goal is to prevent further violations of traffic laws by teen-agers and in so doing we are taking steps to treat their problems as we see them. In this connection, of course, we are instituting educational measures, and hope in the future to elaborate upon them.

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SYMPOSIUM

FACTORS IN SAFE DRIVING

Dr. Eugene P. Owen deals with physical factors, Dr. Eugene S. Turrell, the emotional side, and Dr. Brittain F. Payne, the problems of eyesight in accidents.

HEALTH: The Physical Side

by Dr. Eugene P. Owen

ACCIDENTS in general represent the major public health problem in the nation.

The public should be conditioned to accept more stringent qualifications for the driving of vehicles, such as those now accepted for flying planes or carrying a gun.

The finding of poor risk drivers and removing them from the highways is a major need.

In January of 1956 the nation was shocked; headlines flared. A Santa Fe passenger train, on a curve, had left the track at seventy miles an hour. The tragic results were 30 dead and 117 severely injured. The Interstate Commerce Commission reported the engineer was 61 years of age, and in the opinion of the examining physician, had suffered an epileptic seizure and was not conscious of his actions at the time.

In Johnstown, Pennsylvania, in 1955, a truck and trailer loaded with steel bars collided head-on with a passenger bus that was just discharging its passengers. The truck was on the wrong side of the highway. The findings were that the truck driver was a diabetic and in insulin shock at the time of the accident.

These are just two of a number of serious accidents that have occurred in the transportation field and have resulted from a physical condition affecting a driver of a vehicle. They have this in common: an individual was relied upon to control a moving vehicle, but because of a physical condition was rendered unfit for the task. Thus this vehicle, weighing many tons, is released from conscious control and of course is capable of great destruction. This is a hazard of the transportation industry.

Progressive steps have been made by the trucking industry in accident prevention. At Consolidated Freightways in 1948, the accident rate was 1.49 per 100,000 miles; in 1956 it was .51. This has meant a great saving in life, and a saving of many painful hours of suffering, also many dollars. In 1948 the cost at the aforementioned company was one cent per mile and in 1956 it had dropped to .03 cents per mile.

Motor transportation companies have devoted a greater part of their research to the development of mechanical safety devices—size of wheels, skidability of tires, braking surface of the brakedrums. All great accident reducing factors. But quoting Ernest Cox of the Interstate Commerce Commission:

"In truck accidents during the past year only about 14

Dr. Eugene P. Owen is president of the Northwest Association of Occupational Physicians, Portland, Ore.

Dr. Eugene S. Turrell is director of the Psychiatric Division of Denver General Hospital, Denver, Colo.

Dr. Brittain F. Payne is clinical professor of Ophthalmology, New York University, Post-Graduate Medical School, New York City.

The symposium was presented October 22 during the NSC Commercial Vehicle Section sessions of the 45th National Safety Congress.

This medical panel was later interviewed by three experts in the transport field: Dr. Harold

Medical panel being interviewed at Commercial Vehicle session of 45th National Safety Congress. From left: Drs. Payne, Owen and Turrell, Moderator Arthur E. Nichols, E. G. Cox, Dr. Brandaleone, and J. P. Hightower. Digest will appear in Congress transactions.

per cent were due to mechanical failures and about 86 per cent to human failures."

Our economy is geared to trucks. They are our life blood. They move over congested roads at high rates of speed, each carrying 20,000 to 40,000 pounds of cargo day and night, in all kinds of weather. The operation of these vehicles requires a more alert and physically qualified man back of the wheel than in any other type of transportation. The railroad has a dead-man switch, and is operating upon a restricted right-of-way. The aeroplane pilot has dual controls with a co-pilot. But the truck driver is alone, all by himself. He must then be in top physical condition at all times.

In addition he has a great economic value to his employer. The cost of selection and training of a driver is estimated at $4,925 at Consolidated Freightways.

Brandaleone, assistant clinical professor of medicine, New York University College of Medicine, New York City; E. G. Cox, chief, Section of Motor Carrier Safety, Interstate Commerce Commission, Washington, D. C., and J. P. Hightower, director, Transportation and Safety, Greyhound Corporation, Chicago.

A transcript of these discussions is available in limited quantities from the Council's Motor Transportation Division. A condensed version will also be published in *Current Safety Topics*, volume on Commercial Vehicle Section sessions, transactions of the 45th National Safety Congress.

In an attempt to control the drivers in interstate commerce, the Commission has formulated minimum regulations, they are:

1. **There must be no loss of foot, leg, hand or arm.**
2. **No mental, nervous, organic or functional disease likely to interfere with safe driving.**
3. **No loss of fingers, impairment of the foot, leg, fingers, hand or arm or other structural defects or limitations likely to interfere with safe driving.**
4. **There must be a visual acuity of at least 20/40 (Snellen) in each eye, either without glasses or corrected with glasses; the form field of vision in a horizontal meridian shall be not less than a total of 140 degrees; there shall be an ability to distinguish red, green and yellow colors.**
5. **The hearing shall not be less than 10-20 in the better ear without hearing aid.**
6. **There shall be no addiction to the use of narcotics or habit forming drugs, or the excessive use of alcoholic beverages.**

Mental, nervous, organic or functional disease—these are the physical factors affecting safe driving.

One of the most vital of these is heart disease. Can or should a man be issued a certificate to drive who has had a heart attack or a coronary occlusion? These are often immediately fatal and if not, the occurrence of the next occlusion cannot be predicted.

The United States Air Force and commercial and passenger airlines ground permanently all pilots who have had an occlusion. At the Consolidated Freightways, as far as we know, there has never been an accident due to a coronary occlusion. There have been some heart attacks but fortunately the driver realized he was ill and had pulled off the highway before death occurred. The margin of safety, however, is far too close and in my opinion a cer-

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VISION: DO WE SEE WHAT WE THINK WE SEE?

by Dr. Brittain F. Payne

POOR eyesight may be the basic cause of the awful carnage from automobile accidents occurring every day in our country.

Far too many automobile drivers with defective vision are endangering the lives of others and themselves on the roads at the present time.

Many drivers see well enough, but they fail to use judgment or act in accordance with what they perceive. This is a psycho-physical problem and not related to eyesight.

It matters not whether one is an experienced commercial driver in a deluxe bus or an old-individualist farmer with a model "T" car, visual requirements should be definite and fixed.

At present, there is a tendency to require better vision in commercial drivers. The day will come when driver requirements will be the same for the individual as for the commercial drivers. The people will demand this equalization to spare the lives of their families and themselves. It is just as important for the average driver to have good vision as the special operator of highly specialized machines.

Automobile fatalities have created such a problem that the U. S. Senate Majority Leader, Lyndon Johnson of Texas, introduced a bill at the last session of Congress to investigate and report on necessary measures for correction. The bill, S.1292, which would establish an Automobile and Highway Safety Division within the Department of Health, Education and Welfare is as follows:

> "(1) collect from public and private sources information on the causes of automobile accidents and possible preventative measures to eliminate such accidents and to reduce the seriousness of injuries caused by such accidents (including the design of automobiles and highways) and support and aid research to determine such information.
>
> (2) evaluate and disseminate such information in such manner as may best promote safety on the highways and the reduction of the automobile accident death toll; and
>
> (3) prepare and establish, on the basis of such information and in cooperation with other Federal agencies, with state and local governments, and with industries involved, programs to promote safety on the highways and to reduce the automobile accident death toll."

This measure was referred to the Committee on Labor and Public Welfare, without action being taken. Such an investigation would undoubtedly call for a visual evaluation of operators of motor vehicles. Perhaps some correlation of vision and accidents could be determined. At the present time, there are no adequate figures but Dr. DuPont Guerry III, a medical authority, has stated that between 3 and 5 per cent of the accidents are caused by faulty vision. He further reports that visual acuity requirements range from 20/70 to 20/30 in 46 states and no tests are required in two states.

My thoughts on the importance of vision in driving were stated most ably by Mr. S. E. Nelson, Superintendent of Safety, Burlington Truck Lines, Galesburg, Illinois, in his argument "Against Road Patrolling" at the 44th National Safety Congress, October, 1956, in Chicago. His statement follows:

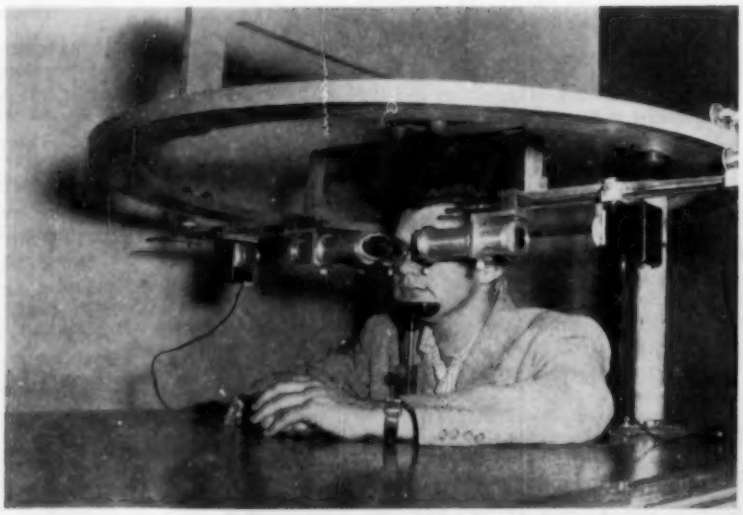
> "We are currently engaged in a program of testing drivers in our fleet on a portable clinic, which tests color vision, visual acuity, depth perception, field of vision and reaction time. During the first week of this testing we

THE ABILITY to see is recognized as the most important factor in driving an automobile of any type.

It is my feeling that better correctible vision of 20/20 for each eye should be required.

Just what disposition is to be made of vision in relation to motion and moving objects will have to be evaluated in the laboratory and on the highways themselves.

—Dr. Brittain F. Payne



Depth and color perception and good field of vision are needed if we are to have drivers who really see.

. . . "visual requirements should be definite and fixed"

found a driver who had not had a physical since July 11, 1955, and, therefore, was not due for another one under I.C.C. rules until July of 1958. This man's eyes had failed during the past few months to the extent that he could not see well enough to drive safely. When we confronted him with the results of our tests, he readily admitted that he could not get around to spending the amount of money required for a pair of glasses. He agreed to have his eyes tested by a doctor and received a new pair of glasses. Today that man is a safe and happier employee, and no doubt is probably grateful for the testing job that we did. I might add that we could have followed this man on the highway for miles and probably wouldn't have the faintest idea that his vision was poor. Yet, he could have been involved in an accident because of his failure to see a hazard or danger. My point is this: The money spent in testing this man was a better investment than the same amount of money spent to buy an observation report of his activities."

Mr. Nelson's experience with this employee is fairly common with those of us who examine eyes day after day.

Unfortunately, the vision of some operators cannot be improved by glasses alone.

Recently, a trusted personal chauffeur of an official of a great corporation was sent to me for relief of failing eyesight. The examination showed beginning blindness from extensive retinal hemorrhages. Further tests showed that he had unsuspected diabetes mellitus and his sight was so affected that it could not be restored. It is interesting that the employer had not insisted on a pre-employment examination of his personal driver, whereas his company insisted on annual medical examinations of all employees, including the official himself.

The ability to see is recognized as the most important factor in driving an automobile of any type. It is my understanding that responsible bus line and trucking firms insist on strict visual requirements. Dr. Hedwig Kuhn, a recognized authority on vision in industry, informs me that some firms follow Air Force regulations for pilots quite closely in the selection of driving personnel for commercial purposes. Such requirements exceed those suggested by the XIII International Congress of Ophthalmology and the recommendation made at a meeting sponsored by the American Medical Association at New York University Medical College, May 23, 1956. Although I participated in this meeting with Doctors Kuhn, Berens and others and was in agreement with the suggested recommendation of correctable vision in each eye of 20/30, (if glasses required for 20/30 they should be unbreakable or an extra pair should be available) it is my feeling now that better correctable vision of 20/20 for each eye should be required. Just what disposition is to be made of vision in relation to motion and moving objects will have to be evaluated in the laboratory and on the highways themselves.

The above is concerned with vision for distance. The ability to shift the focus from the road to the instrument panel is the effort of accommodation. It is taken for granted that human engineering has taken care of the visibility of the instrument panel. Older farsighted operators frequently used weak bifocal lenses to see the speedometer, oil gauge, and other instruments. Although not continuously required for driver's licenses, it should be noted on employment and re-examinations. Some embarrassment might follow if the driver could not see the indicator for "engine heating." Eye glasses might help the lack of accommodation.

"Seeing double" or diplopia is a serious condition which

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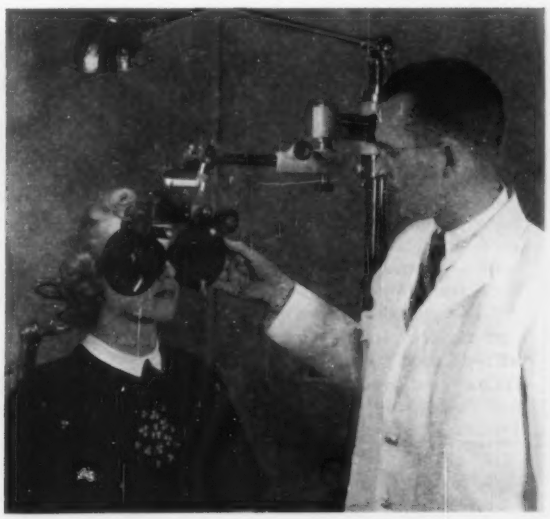
Constant eye protection check for industrial workers and drivers is a must if we are to eliminate this accident cause.



Correctible vision of 20/20 in each eye should be required of all who drive, plus other requirements.

EMOTIONS: PERSONALITY'S MULTIPLE FACETS

by Dr. Eugene S. Turrell

INJURIES and deaths due to accidents constitute one of the major health problems of this country. As is the case of any health hazard, a knowledge of etiology is of paramount importance in developing adequate preventive and treatment measures.

The task of investigating a phenomenon as inherently complex and as multi-determined as motor vehicle accidents demands a many-sided approach. Among the types of accident research apparently in progress, there are:

1. Studies of factors of automotive design and safety features,
2. Investigations of the relation of highway design and traffic characteristics to accident frequency,
3. Research on safety regulations and law enforcement,
4. Studies of the relation of physical health and the physiological functioning to accident susceptibility.

Added to these are studies of emotional factors in relation to accident frequency and investigation of the effects of psychotherapy on a driver's behavior. Though this discussion will focus upon emotional factors, it must be emphasized that these influences operate within the previously noted framework of multiple causality.[1]

Interest in emotional factors in accidents gained its impetus when Marbe, in 1926, proved statistically that the person who has one accident is more likely to have another than the person who never had one.[2] In 1934, Alexander Adler suggested that an unknown factor in a human personality was responsible for repetition of injuries in these persons prone to accidents. Additional work of Dunbar,[2] Menninger,[3] Tillman,[4] McFarland,[5] and others further demonstrated this relationship between personality factors and accidents. However, what might be considered a single influence in causality, turns out to have multiple facets. There is not a single, isolated emotional influence related to accidents but rather a multiple of interrelated emotional factors—thus further complicating our already complex system of multiple causality.

Perhaps this could be illustrated by brief case histories:

1. One young man in his early twenties had five accidents during a three-year period. During this time, his father had been ill and our patient had to do all of his father's work around the farm. The patient had resented this, and the five accidents had all occurred while driving the father's car, with damage only to the car.
2. Another patient had an accident when he ignored a stop sign and a truck ran into the right side of his car. His wife was sitting on the right side holding their baby. Fortunately, no one was injured. However, a careful history revealed that this accident had occurred following an argument between the patient and his wife—an argument which the patient felt that he had lost.
3. Another patient had six accidents in a two-year period. In all of these, the patient had been run into and complained that he was not at fault. He made it appear as though he had been victimized in each circumstance and was thus able to seek sympathy in his role as the victim. However, the number of accidents of this nature would indicate that he had had something to do with setting the stage. Further evaluation revealed underlying suicidal drives.

Though the settings were superficially different in each of these cases, each involved hostile and aggressive impulses. The difference appears in the handling of these impulses. In other cases, sexual impulses or guilt reactions to sexual impulses may be involved. Menninger, in his book "Man Against Himself," classifies the accident motives as follows:

MUCH of human behavior is motivated by sexual and aggressive impulses. "But," says Dr. Turrell, we have concluded that accident potential is not related to the degree to which individuals have such impulses but rather to the methods by which they handle them.

"The question then becomes: Having experienced such feelings or impulses, how does the individual control his behavior?"

Youngsters have same aggressive instincts as adults. The difference is that adults must learn to control them in social world.

. . . "accident potential depends on control of impulse"

1. **As a means of atonement of guilt,**
2. **As a permission for further indulgence,**
3. **As a result of rage.**

But this leads us a little nearer the solution of the accident problem, since much of human behavior is motivated by sexual and aggressive impulses.

During our studies at the University of Colorado, we at one time had the impression that a measure of hostile, angry feelings would give some indication of accident susceptibility. Such feelings generally arise from frustration of normal aggressive drives, and psychodynamically, are found to stem early frustrations. We used the Rorschach test as an indicator of these impulses, or derivatives of impulses, and intensively studied a group of accident and non-accident subjects.

These tests were then interpreted by skilled psychologists who did not know into which group each of the subjects belonged. The subjects were divided into two groups on the basis of the degree of exhibition of such impulses, with the startling result that each group was composed of half accident and half non-accident subjects. We could not have come closer to a chance phenomenon had we tried.

On the basis of this study, we have come to the conclusion that accident potential is not related to the degree to which individuals have such impulses but rather to the methods by which they handle or cope with these impulses. Incomplete results on further analysis of our data continues to support this conclusion. The question then becomes: *having experienced such feelings or impulses, how does the individual control his behavior?*

This view agrees with other findings of our study—that accident and non-accident drivers are best differentiated by particular tests, such as the Allport-Vernon scale of values.

This is a test which rates individuals as to how well they agree or disagree with different value systems. Those dealing with aesthetic, theoretical, and religious concerns prove highly discriminatory on both the original and cross validation samples in our study. The remaining scales (economic, potential and social) did not. *The non-accident subjects were more oriented toward religious values and less toward aesthetic and theoretical values than the high accident subjects.* The mean scores of a middle accident group fell in a middle range between the high and non-accident subjects.

Such a differentiation would further indicate the importance of controls over impulses, since value systems are probably a reflection of behavior in response to varying impulses. These findings are in agreement with Tillman's studies and his classic statement that "a man drives as he lives."

Dunbar in her studies of accident proneness, also emphasizes the behavioral aspects of the accident subjects. She describes the accident susceptible person as a decisive pseudo-impulsive person with unresolved conflicts with authority; and makes the interesting observation that accident proneness seems to occur when delinquent behavior is no longer a successful mechanism for handling such conflicts.

Each of these studies would indicate, then, that social adaptation and value systems of the individual will give some clues about his safety as the driver. If these findings are valid, we are then confronted with the question of

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Medical doctor and psychiatrist can help lick problems of drivers with high accident records.

Prayer at mealtime for this family is tipoff that driver is safe operator with high regard for spiritual values.

FLINT'S PIED PIPER SINGS KIDS TO SAFETY

Unique safety program pays off in reduced child traffic deaths, despite rise in motor vehicle registration and population growth.

WHEN Christmas rolls around, youngsters in Flint, Michigan—like their counterparts throughout the country—will be singing Christmas carols and jingles. But, though the tunes will have the traditional holiday ring, the words will sometimes have a different sound.

Take the old familiar Jingle Bells. The Flint version goes like this:

Save a life! Save a life!
Save a life today.
Oh, what fun it is to run
And play the safety way.

Teaching safety through song isn't just a holiday pursuit in Flint. Youngsters in this Michigan city absorb their safety instructions through playtime activities the year round. It all started in 1939 when officer Wilburn Legree, who had been conducting Flint's child traffic safety program for a year, added safety songs to his routine of safety stories, felt board illustrations, and miniature automobile demonstrations.

The singing wasn't Legree's idea. It was the brainstorm of Neil F. Anderson, then chief of police, who got the idea when he heard the officer tossing off an operatic aria during his lunch hour one day.

Legree was cold to the innovation and tried it out with some misgiving. The first time he used the safety songs he watched his audience closely.

"I'll never forget the expressions on the faces of those kids," he said. "I

TINY TOTS learn safety and respect for law through school safety sings.

don't know who was more scared—them or me."

But the songs stayed in the program and Legree has been known as Flint's "Singing Cop" ever since. His wife, Charlotte, helped compose lyrics and gradually they built up a repertoire of safety songs set to popular tunes.

How well Flint's child traffic safety program has paid off is shown by the record.

In the five years preceding the beginning of the child safety program Flint had 39 child fatalities in the 5-14 year bracket. From 1938 to the present time—a period of 19 years—there have been 38 fatalities.

This great reduction in child deaths has taken place in spite of an increase in population and motor vehicle registration. Since 1950 Flint's population has grown from 160,000 to 198,000 in 1955. Motor vehicle registration has increased from 78,160 cars and trucks in 1950 to 110,000 cars and trucks in 1955.

Last year, Flint received a certificate of achievement for school safety education and safety organization in the National Safety Council's Inventory of Traffic Safety Activities. The child safety program received a 93 per cent rating.

The program has aroused wide interest. It has been written up in newspapers and magazines in this country and abroad. More than 600 communities in Michigan and others in 42 states use Legree's songs. The school systems of cities in Germany, Australia and New Zealand also utilize these lyrics and music.

A HAPPY Mrs. Legree looks on as Lt. Legree receives Civitan's "Flint Citizen of the Year" award in 1956.

The elementary school program is used in both the public and parochial schools of Flint from kindergarten through the sixth grade. Children are taught the songs in school and sing them at school, at home and at play.

Legree, who is now a lieutenant, visits each of the Flint schools at least once a year. He shows traffic safety films, demonstrates a portable traffic safety signal, tells safety stories, and leads the youngsters in community singing.

In addition to this program, he conducts junior and senior high school assemblies, school PTA safety programs, and luncheon safety singing programs. In all, his programs reach an average of 60,000 persons per year.

Since 1943 Lt. Legree has had his own popular radio safety program, a 15-minute show. Last year he was named Flint Citizen of the Year by the Civitan Club for "exceptional service to youth, within and beyond duty."

INSTRUCTING SCHOOL patrols is part of Lt. Legree's job. Several patrol boys who trained under him are now police officers, others are non-uniformed members of the police department.

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ARE COURTS CODDLING YOUNG DRIVERS?

Jacob John Quillin, Presiding Judge, Municipal Court, Portland, Ore.

I have no desire to be critical of juvenile courts and their sincere efforts to handle young drivers where the law gives them jurisdiction over their cases; but I am firmly convinced that the method suggested below is much to be desired. My own observation has included the numerous cases of young people who have had their first traffic difficulties while under jurisdiction of the juvenile court, and a good one at that, being very much surprised with the manner in which their fellow motorists are being handled in the court having jurisdiction beginning at age 18.

Every city—and nearly every village—in America today is echoing a complaint that juvenile delinquency is rampant and that our teen-age traffic violators in particular are being ineffectively handled. That the juvenile driver or teen-age operator of motor vehicles figures prominently among traffic law violators, particularly in excessive speed cases, has been definitely noted during my fifteen years on a traffic court bench.

It is my opinion that it would be much better if the law required all licensed drivers to answer any traffic summons in a regular traffic court where correction is properly associated with the adequate penalization and license control. If there is any field where court specialization is justified, it is in the field of motor vehicle traffic. For service in this important field both prosecutor and judge require specialized training. Apart from the tragic toll of deaths and injuries, their information should include the economic loss of nearly five billion dollars a year and the property damage of about one-half million dollars every hour, day in and day out, in these United States, as the result of so-called "traffic accidents."

The regular traffic court with proper facilities for handling violators of the motor vehicle laws, plus a thorough understanding of the offense and a specialized knowledge of successful traffic court technique, is a combination worthy of jurisdiction over every person, regardless of age, to whom a driver's license has been issued by the state.

Unfortunately, as we are faced with complexities and challenges which are often too sweeping for personal solution, it becomes increasingly difficult to isolate and recognize individual responsibility, which is, indeed, the very heart of the problem. Individuals must not be arbitrarily classified into neat little bundles and judged wholly on their capacity for adjustment. It is fallacious reasoning to assume that the teen-agers who pour 2.5 billion gallons of gas into their jalopies (and Dad's car on Saturday night) are all "problem children." Many of them are adults both in driving ability and thinking. A very small percentage can fairly be called delinquent. None of them should be denied the privilege of attending the same court that hears other traffic cases in their communities. In my opinion, every person old enough to be licensed to drive a motor vehicle should be given the opportunity of learning personal responsibility in the court of general traffic jurisdiction.

Orman W. Ketcham, Judge, Juvenile Court, Washington, D. C.

We believe that juveniles should be dealt with in Juvenile Court. However, commencing about three months ago, we established a special session of the Juvenile Court calendar devoted solely to juvenile traffic offenses. This allows us to distinguish and separate juvenile traffic violators from dependent or delinquent juveniles. It also permits a more uniform handling of the procedure at the hearings. In general, I would say that our new procedure in this respect has been successful, and has met with community approval.

In terms of disposition, we began about three months ago the practice of impounding the operating permits of juveniles in many cases of traffic violations. We have found that, for juveniles, traffic fines are largely impracticable; either the parent pays the fine, or the juvenile does not have the money available and must be incarcerated somewhere for punishment, not treatment. Consequently, we feel that the act of depriving a juvenile of his right to drive for a period of time (ranging between 1 and 6 months) is a more effective disposition.

I do feel juvenile traffic offenders should be handled in a Juvenile Court, because in a substantial number of cases (between 10 per cent and 25 per cent), the traffic offense committed by the juvenile is but a tell-tale symptom of deeper problems which need treatment and correction. Only a specialized court, like the Juvenile Court, can give this.

Rex H. Scott, Municipal Judge, Boulder, Colo.

I feel strongly that *all* juvenile drivers should come to Traffic Court along with adult defendants. This does not mean, however, that they should be treated the same. I am very much opposed to a special session for *juveniles only* in Traffic Court. I am equally against sending them to Juvenile Court, unless in addition to the traffic violation, the juvenile is a *true* delinquent, the latter being indicated by:

1. A history of repeated traffic violations and/or other non-traffic offenses.

2. Traffic offenses involving drinking or other aspect of morals.

Most teen-age drivers are good drivers, or will be if given a chance to learn. Driver training in high school and traffic safety in grade school are as essential to the curriculum as math and spelling. These fundamentals, however, do not complete the driver's education. A trip to Traffic Court can very well provide the final course of study, if it is handled properly.

The average teen-age traffic violator is *not* a juvenile delinquent in the usual sense, so why send him to Juvenile Court? The chances are greatly enhanced that he will become a delinquent, if that label is placed on him.

The usual teen-age driver is not a "special case." He becomes involved in the same traffic situations, is governed

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Test Talk

Australia drafts model test law

A special Medical-Legal Committee of the Australian Transport Advisory Council has drawn up a "Draft Act" on chemical tests to serve as a basis for state legislation.

The model law used the percentage of 0.05 as the dividing line between "influenced" and "not influenced." Persons testing 0.05 per cent and below are not considered "under the influence." Section 4 (B) of the draft provides: "where such evidence disclosed that the percentage weight/volume of alcohol in the blood of the person at the time of the alleged offense was in excess of 0.05 grams it shall be considered with other competent evidence in determining whether the person was or was not under the influence of intoxicating liquor."

Liver enzyme burns up alcohol

Alcohol in the human body is almost all destroyed by action of an enzyme secreted by the liver. The process of destruction of alcohol is quite uniform in a given individual regardless of outside conditions. The average person can destroy about one-third fluid ounces (10cc) of alcohol per hour.

Persons of other weights will vary proportionately. Once the destruction rate overcomes the absorption rate, and the "peak" has been passed, as in most arrested drunk drivers, the blood alcohol will be reduced .02 to .04 per cent per hour. This figure is not greatly influenced by the weight of the person.

Last shot kills drunken driver

The remote Soviet Republic of Kazakhstan is cracking down on traffic violators, especially drunken drivers. It is reported that one drunken motorist drove his car through a crowd of pedestrians, killing one and injuring several, was sentenced to execution by a firing squad.

Drugs and alcohol

According to Dr. W. J. R. Camp, professor of Pharmacology, University of Illinois, School of Medicine, "pills as well as alcohol can make unsafe auto drivers out of otherwise reliable ones." He recommends that doctors warn their patients—when necessary—"against driving while under medication." He put barbiturates at the head of the list of drugs which can decrease the ability to drive safely. Barbiturates are commonly prescribed as sleeping pills.

Dr. Camp says we should also question the wisdom of driving while taking tranquillizer drugs, which are not without side actions and known to produce a "don't care attitude."

"We need not stress that users of marijuana, morphine, heroin or cocaine have no business driving a car, but insufficient thought has been given to the effect of more commonly used drugs," says Dr. Camp.

Brass Button News

Hotrodders afloat

The Michigan State Police have a Marine Safety Squad on patrol. The department's fast boat is capable of overtaking suicidally foolish or criminally careless boat operators.

The state police craft is equipped with radio, as are patrol boats operated by local authorities. The hotrodding speed boaters can be intercepted and hailed before the Michigan traffic courts where they may be fined, sentenced up to 90 days in jail, and ruled off the waterways.

The *Detroit News* proposes that boat operators be licensed after passing a written test just as motor vehicle drivers are licensed. The courts would have power of revocation and suspension of licenses for violation of boat safety regulation.

German Blacklist

The West German Parliament has approved two laws to combat the increasing traffic death toll. One establishes a "blacklist" of traffic offenders; the other reintroduces speed limits.

The blacklist is a central index of all traffic offenses. Jaywalkers and cyclists who cause traffic accidents will be registered. When the total of fines or legal sentences on one person's index card passes a prescribed level, the local authorities will be informed and can take steps to rule the driver off the road. The index will be consulted by all courts considering traffic offenses.

California Good Driver Bonus

Provisions of a recent amendment to the California state vehicle code give drivers in that state a unique incentive for keeping their driving records clean. Persons with records untarnished by traffic convictions will have to renew their drivers licenses less often than fellow citizens who have been found guilty of traffic law violations.

Providing for expiration of a license on the holder's birthday, the Amendment also establishes a renewal deadline based on the official driving record. Licenses renewed by operators who have had two or more convictions (four in case of a chauffeur license) during the previous two years will expire on the second birthday.

New permits must be renewed on the third birthday except where two offenses have been recorded on the applicants record. The second birthday expiration date will then apply even if the driver did not hold a California license at the time of conviction.

Interference Rap in Virginia

In Richmond, Virginia, a motorist who had been arrested for speeding through radar was fined $25.00 when he came back to the scene of his arrest with a large cardboad sign warning other motorists. The charge was "interfering with an officer in performance of his duty."

ARE COURTS CODDLING YOUNG DRIVERS?

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by the same laws, and has the same things in common with adult drivers. He can kill and be killed in traffic as easily *under* twenty-one as *over* twenty-one. Then why treat him as a child, or have "special" traffic sessions for his age group only? When the teen-ager starts to drive, he must face up to adult responsibilities. Isn't it logical to assume that he can best find out what these obligations are by coming to court *with adults* who have failed, after years of driving, to measure up, and thereby avoid the mistakes they have made?

The traffic violator is a peculiar individual. He may be a very religious man, a prominent citizen, a pillar of strength in the community. He or she may be a good husband or wife, an exemplary father or mother. He would never think of robbing or cheating, and mayhem and murder are furthest from his mind. But when he gets into an automobile, his whole character changes. Why it changes and what to do about it are the greatest problems the traffic judge has to solve. Many adult drivers will never change. The youngster is still learning and his mind is still open. Whatever we can teach each new generation of teen-age drivers will gradually produce good adult operators.

Thomas M. Powers, Judge,
Akron, Ohio

In general, I think we *are* coddling our teen-age traffic violators.

Many of these teen-agers must come before the Juvenile Court and not the Traffic Court in many if not most states. If the teen-ager is above the age of being a juvenile he, of course, comes before the regular court.

The unfortunate thing about treatment accorded traffic violators in Juvenile Court is that it follows the same treatment or approach as in other juvenile offenses.

It is hush-hush. The records are confidential. Names are not published in the newspaper. There is no hearing in open court—in fact, generally it is a hearing before a clerk, probation officer or other court attache and not the judge at all.

Young people who get into trouble on the highway are not deterred by such treatment. They are at the age and stage in life where if they are highway cut-ups they should be deterred. They have no fear of consequences. They cannot be arrested, or thrown in jail as are other offenders or even be made to appear with other violators before the bench and be questioned by the judge.

I know there are exceptions. Toledo and Akron, Ohio are two that come to mind. The Toledo Juvenile Court is seriously interested in young traffic offenders. It keeps a close check on them, and suspends drivers' licenses more often than many courts. In Toledo, the name of the juvenile traffic offender appears in the newspaper. Juveniles, I am told, don't relish having their names published.

In Akron the judge of the Juvenile Court has given specialized attention to the young offender by turning this division of the court's work over to an interested young man who is winning the respect of the juveniles and the thanks of parents. As in Toledo, he follows up on offenders. In nearly all cases he sends violators to the Traffic Safety School located on the campus of the University of Akron which donated the space. This is the same school adults are referred to from the regular Traffic Court. What those attending see, hear and experience has a very sobering effect. The school emphasizes proper attitude and responsibility. The school is one of the most effective tools we have found in dealing with young or habitual traffic violators.

In summary, I would say we are coddling youthful drivers just because they are young. What they need is education, help, guidance and discipline. Discipline is a part of the educational process; it is what is sorely needed for those with whom kindly persuasion has failed. A tighter rein on youthful violators will cut down traffic accidents and deaths, make the highway safer for them and for you, and make for greater peace of mind for parents.

W. K. Chapman, Judge,
Corporation Court, Dallas, Texas

Teen-age traffic violators should be handled in the same court as other traffic violators, with the judge giving special attention to each case, for the following reasons:

1. They are easier to control.
2. You may direct their attention to the importance of forming proper driving habits at an early age, before they become set in their ways.
3. Their attention is directed to the value of a driver's license by calling their attention to the large number of adults in court attempting to protect their licenses.
4. It tends to replace fear of authority with respect for authority.

I find it helpful to ascertain whether or not the teen-ager owns a motor vehicle, has informed his parents of this violation, has the permission of his parents to operate a motor vehicle, and has any questions about the traffic laws.

It is my experience that teen-agers being oriented along these lines seldom become habitual traffic violators.

Roy DeGrief
Municipal Traffic Judge, Seattle, Wash.

I feel that if the person is given permission by our state to drive then he is old enough to be tried in traffic court and subject to the same penalties as adults. In the past two years I have probably tried 1,000 cases which have been referred to my court by the juvenile court and I have found the most effective penalties to be jail sentences and the suspension of the license.

The arrogant, defiant, don't care boy is generally a lot better youth after he spends a few days in jail. The number of days depends upon the nature of the offense and the degree of arrogance and defiance. Usually three or four days or a week-end will serve the purpose while in exceptional cases it sometimes takes two or three weeks.

I believe the courts must be fair, firm and consistent in

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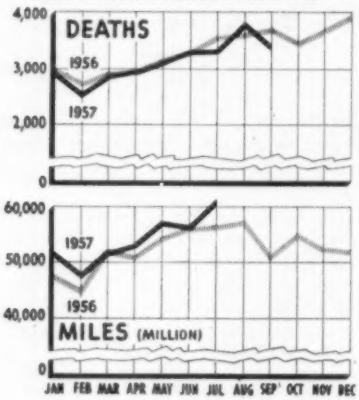
Latest Traffic Accident Data

The leading cities in each population group at the end of nine months, ranked according to the number of deaths per 10,000 registered vehicles, were:

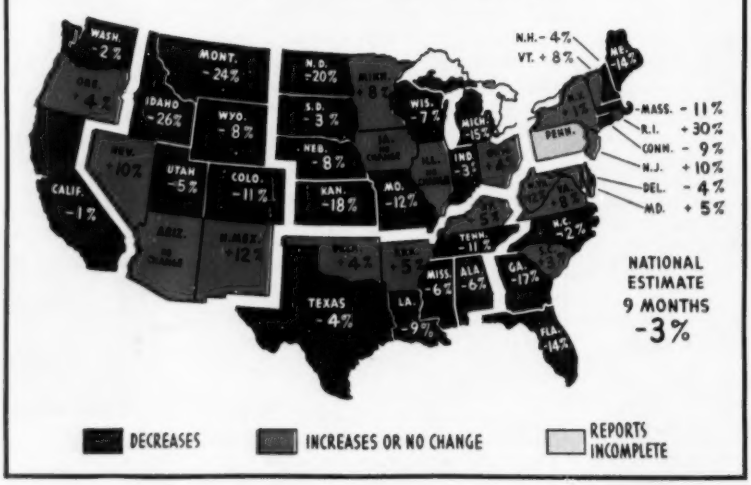
	Reg. Rate
Over 1,000,000 Population	
Detroit, Mich.	2.6
Chicago, Ill.	2.9
Philadelphia, Pa.	3.0
750,000-1,000,000 Population	
St. Louis, Mo.	2.5
Washington, D. C.	3.0
San Francisco, Calif.	3.1
500,000-750,000 Population	
Milwaukee, Wis.	1.5
Seattle, Wash.	1.6
Minneapolis, Minn.	2.0
350,000-500,000 Population	
Denver, Colo.	1.6
Kansas City, Mo.	1.8
Portland, Ore.	1.9
200,000-350,000 Population	
Syracuse, N. Y.	1.0
Norfolk, Va.	1.0
Wichita, Kan.	1.2
100,000-200,000 Population	
Montgomery, Ala.	0.3
Lubbock, Tex.	0.3
Wilmington, Del.	0.7
50,000-100,000 Population	
Lynn, Mass.	0.0
Pensacola, Fla.	0.3
Racine, Wis.	0.4
25,000-50,000 Population	
Yakima, Wash.	0.0
Billings, Mont.	0.0
Ann Arbor, Mich.	0.0
10,000-25,000 Population	
Kingsport, Tenn.	0.0
Benton Harbor, Mich.	0.0
Pasadena, Tex.	0.0

MONTHLY MOTOR VEHICLE DEATHS AND TRAFFIC TRENDS 1956-1957



● **STATE and city death records listed on these pages are reported to the Council by state and city agencies participating in the Council's accident reporting project. Deadline for reporting is the 25th of the following month.**

CHANGES IN MOTOR-VEHICLE DEATHS
FIRST 9 MONTHS, 1956 TO 1957



MOTOR VEHICLE DEATHS AND DEATH RATES

1955, 1956 and 1957

Month	1955	1956	1957	1955-57 Change	1956-57 Change
January	2,810	2,990	2,900	+ 3%	—3%
February	2,319	2,720	2,530	+ 9%	—7%
March	2,602	2,920	2,860	+10%	—2%
April	2,753	2,930	2,930	+ 6%	0%
May	3,101	3,170	3,110	0%	—2%
June	2,982	3,290	3,290	+10%	0%
July	3,350	3,570	3,320	— 1%	—7%
August	3,586	3,610	3,790	+ 6%	+5%
September	3,446	3,710	3,380	— 2%	—9%
Nine Months	26,949	28,910	28,110	+ 4%	—3%
October	3,918	3,460			
November	3,559	3,690			
December	4,000	3,940			
Total	38,426	40,000			

All 1955 figures are from N.O.V.S. All other figures are National Safety Council estimates. The 1957 national estimate is arrived at by assuming that the percentage change from 1956 to 1957 in the states reporting for both years reflects the 1956-1957 change in the entire country. Since national estimates made in this way become more accurate as more states report, revisions are made from time to time as new reports are received for the various months. Thus, figures above for 1957 may differ slightly from figures for the same months published in future issues of TRAFFIC SAFETY.

TRAFFIC DEATHS—CITY RECORDS

The table covers only motor-vehicle deaths resulting from traffic accidents that occurred in the city. Nontraffic motor-vehicle deaths (where the accident occurred on home or work premises) are not included; nor are deaths in the city from accidents occurring outside.

Rankings are based on the 1957 registration death rate which is the number of deaths per 10,000 registered motor vehicles on an annual basis. Vehicle registration figures are for the year 1956 and were supplied by R. L. Polk & Company.

Cities are ranked by death rates—from low to high. When two or more cities have exactly the same rate, ranking is by total vehicle registrations—from large to small.

Cities shown in heavy type have improved in 1957 compared with 1956.

The population death rate is the number of deaths per 100,000 population on an annual basis. Populations are as of April, 1950, or later censuses taken by the U. S. Bureau of Census.

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
ALL REPORTING CITIES				2.2	8.9
Group I (1,000,000 and over)					
1. Detroit, Mich.	126	151	149	2.6	9.1
2. Chicago, Ill.	221	241	252	2.9	8.0
3. Philadelphia, Pa.	114	130	118	3.0	7.3
All cities in this group				3.3	8.8
4. Los Angeles, Calif.	295	291	246	3.5	17.5
5. New York, N. Y.	411	396	451	3.8	7.0
Group II (750,000 to 1,000,000)					
1. St. Louis, Mo.	54	74	61	2.5	8.4
2. Washington, D. C.	49	40	48	3.0	7.6
3. San Francisco, Calif.	65	64	54	3.1	11.2
All cities in this group				3.1	9.9
4. Baltimore, Md.	74	88	68	3.2	10.4
5. Cleveland, Ohio	82	71	62	3.5	11.9
Group III (500,000 to 750,000)					
1. Milwaukee, Wis.	27	50	33	1.5	5.1
2. Seattle, Wash.	32	46	18	1.6	7.4
3. Minneapolis, Minn.	30	24	26	2.0	7.7
4. Boston, Minn.	29	49	40	2.2	5.3
5. Dallas, Texas	47	33	26	2.4	11.4
6. Buffalo, N. Y.	37	35	37	2.5	8.5
All cities in this group				2.5	8.9
7. Pittsburgh, Pa.	38	41	48	2.6	7.5
8. Houston, Texas	68	53	61	2.8	12.7
9. Cincinnati, Ohio	47	37	45	3.5	12.4
10. New Orleans, La.	54	51	45	4.2	12.0
Group IV (350,000 to 500,000)					
1. Denver, Colo.	26	26	30	1.6	8.3
2. Kansas City, Mo.	23	30	25	1.8	6.7
3. Portland, Ore.	29	30	27	1.9	9.4
4. Memphis, Tenn.	20	31	26	1.9	6.5
5. Louisville, Ky.	24	47	37	2.1	8.3
All cities in this group				2.6	10.5
6. Oakland, Calif.	33	39	24	2.9	11.4
7. San Antonio, Texas	45	40	44	3.2	15.6
8. San Diego, Calif.	42	44	39	3.4	11.3
9. Atlanta, Ga.	58	44	46	4.4	18.1
Group V (200,000 to 350,000)					
1. Syracuse, N. Y.	6	11	6	1.0	3.6
2. Norfolk, Va.	7	10	6	1.0	4.4
3. Wichita, Kan.	12	10	8	1.2	7.1
4. Oklahoma City, Okla.	15	12	12	1.4	8.2
5. St. Paul, Minn.	14	19	23	1.4	6.0
6. Rochester, N. Y.	16	6	18	1.5	6.4
7. Miami, Fla.	27	22	24	1.7	13.9
8. Tampa, Fla.	15	29	15	1.8	9.2
9. Dayton, Ohio	19	19	22	1.8	10.4
10. Fort Worth, Texas	22	37	20	1.9	8.9
11. Jacksonville, Fla.	14	13	17	2.0	9.1
12. Providence, R. I.	14	10	10	2.0	7.5
13. Toledo, Ohio	23	16	18	2.0	10.1
14. Worcester, Mass.	9	11	10	2.1	5.9
15. Honolulu, T. H.	21	15	17	2.1	11.3
16. Richmond, Va.	17	26	17	2.1	9.5
All cities in this group				2.1	9.8
17. Omaha, Neb.	18	21	16	2.2	9.6
18. Birmingham, Ala.	28	33	31	3.1	11.4
19. Long Beach, Calif.	39	26	23	3.9	20.7
20. Akron, Ohio	42	27	19	4.6	20.4
Group VI (100,000 to 200,000)					
1. Montgomery, Ala.	1	5	7	0.3	1.2
2. Lubbock, Texas	1	4	8	0.3	1.3
3. Wilmington, Del.	4	4	4	0.7	4.8
4. Hartford, Conn.	3	6	5	0.8	2.3
5. Waterbury, Conn.	2	4	11	0.8	2.6
6. Lincoln, Neb.	3	9	1	0.8	3.4
7. Berkeley, Calif.	3	8	3	0.9	3.5
8. Phoenix, Ariz.	11	20	18	1.0	11.4
9. Baton Rouge, La.	5	6	4	1.1	5.3
10. Yonkers, N. Y.	4	8	5	1.1	3.5
11. Sacramento, Calif.	9	18	11	1.2	7.6
12. South Bend, Ind.	6	8	2	1.3	6.9
13. Nashville, Tenn.	10	23	15	1.4	7.6
14. Arlington, Va.	6	7	3	1.4	5.9
15. Trenton, N. J.	7	6	4	1.4	7.3
16. Austin, Texas	7	11	12	1.5	7.0
17. Peoria, Ill.	6	3	4	1.5	7.0
18. Knoxville, Tenn.	7	7	8	1.5	7.5
19. Allentown, Pa.	5	3	10	1.5	6.2
20. Salt Lake City, Utah	10	17	10	1.5	7.3
21. Flint, Mich.	12	16	21	1.5	9.8
22. Utica, N. Y.	4	0	4	1.6	5.3
23. Fort Wayne, Ind.	9	10	7	1.6	8.3
24. Kansas City, Kan.	8	4	10	1.6	8.2
25. Grand Rapids, Mich.	14	19	10	1.7	10.6
26. Fresno, Calif.	12	5	8	1.7	14.8
27. Amarillo, Texas	6	10	7	1.7	8.0
28. Des Moines, Iowa	12	6	8	1.8	9.0
All cities in this group				1.8	8.7
29. Erie, Pa.	9	6	7	1.9	9.2
30. Canton, Ohio	9	11	6	2.0	10.3
31. Little Rock, Ark.	7	10	2	2.0	8.7
32. Evansville, Ind.	9	6	6	2.0	9.3
33. Youngstown, Ohio	11	15	18	2.0	8.7
34. Savannah, Ga.	7	10	13	2.0	7.8
35. Charlotte, N. C.	12	17	15	2.0	11.9
36. Corpus Christi, Texas	10	14	16	2.0	12.3
37. Rockford, Ill.	10	3	8	2.0	11.9
38. New Haven, Conn.	8	8	5	2.1	6.5
39. Shreveport, La.	11	14	5	2.1	11.5
40. Bridgeport, Conn.	10	9	6	2.2	8.4
41. Tacoma, Wash.	12	10	12	2.2	10.2
42. Glendale, Calif.	9	9	5	2.2	11.4
43. San Jose, Calif.	14	22	8	2.3	14.6
44. Reading, Pa.	10	1	4	3.1	12.2
45. Chattanooga, Tenn.	13	18	8	3.2	13.2
46. Duluth, Minn.	10	7	9	3.2	12.8
47. Gary, Ind.	16	17	13	3.3	12.6
48. Pasadena, Calif.	16	12	14	3.3	20.4
49. Elizabeth, N. J.	11	11	4	3.9	13.0
50. Mobile, Ala.	19	23	11	4.6	14.6
Group VII (50,000 to 100,000)					
1. Lynn, Mass.	0	2	1	0.0	0.0
2. Pensacola, Fla.	1	4	2	0.3	2.6
3. Racine, Wis.	1	3	4	0.4	1.9
4. Augusta, Ga.	1	6	5	0.4	1.9
5. Mt. Vernon, N. Y.	1	2	3	0.5	1.8
6. Pawtucket, R. I.	1	3	2	0.5	1.6
7. Kenosha, Wis.	1	1	3	0.5	2.4
8. Springfield, Ill.	2	2	11	0.6	13.2
9. New Rochelle, N. Y.	1	4	1	0.6	2.2
10. Pontiac, Mich.	2	5	9	0.6	3.6
11. Berwyn, Ill.	1	1	2	0.6	2.5
12. Santa Ana, Calif.	2	6	7	0.6	3.9
13. Orlando, Fla.	3	5	2	0.7	7.6
14. Lexington, Ky.	2	2	2	0.7	4.8
15. Brookline, Mass.	1	2	2	0.8	2.3
16. Terre Haute, Ind.	2	7	7	0.8	4.2
17. Waltham, Mass.	1	4	3	0.8	2.7
18. Raleigh, N. C.	3	4	1	0.8	6.1
19. Burbank, Calif.	3	3	5	0.8	4.5
20. Lake Charles, La.	2	2	2	0.9	4.8
21. Santa Barbara, Calif.	2	1	6	0.9	5.3
22. Abilene, Texas	2	2	4	0.9	4.5
23. St. Joseph, Mo.	2	4	1	0.9	3.4
24. San Mateo, Calif.	2	7	6	0.9	4.4
25. Colorado Spgs., Colo.	3	3	3	1.0	6.4
26. Manchesrer, N. H.	2	6	4	1.0	3.2
27. Fort Lauderdale, Fla.	4	6	6	1.0	8.5
28. Springfield, Ohio	3	3	4	1.0	5.1
29. Lakewood, Ohio	2	4	2	1.1	3.9
30. Jackson, Miss.	4	6	11	1.1	5.4
31. Kalamazoo, Mich.	4	7	1	1.1	9.2
32. New Britain, Conn.	2	1	5	1.1	3.6
33. Columbus, Ga.	3	2	6	1.1	5.0
34. Schenectady, N. Y.	4	1	2	1.1	5.8
35. Madison, Wis.	4	1	4	1.1	5.5
36. Wichita Falls, Texas	3	5	3	1.1	4.4
37. Hamilton, Ohio	3	4	2	1.1	6.9
38. Oak Park, Ill.	2	8	4	1.1	4.4
39. W. Palm Beach, Fla.	3	9	2	1.2	7.8
40. Muncie, Ind.	3	7	4	1.2	6.8
41. Charleston, S. C.	2	4	3	1.2	3.8
42. Alexandria, Va.	4	4	1	1.2	8.6
43. Hayward, Calif.	3	6	1	1.2	7.3
44. Greenville, S. C.	4	5	3	1.3	9.2
45. Anderson, Ind.	3	3	2	1.3	8.0
46. Stamford, Conn.	3	3	8	1.3	5.4
47. Evanston, Ill.	3	3	2	1.3	5.3
48. Dubuque, Iowa	2	2	4	1.4	5.2
49. Lansing, Mich.	6	3	6	1.4	8.7
50. Topeka, Kan.	5	5	3	1.4	8.0
51. Richmond, Calif.	3	10	5	1.4	4.0
52. Cedar Rapids, Iowa	4	3	3	1.5	7.4
53. Jackson, Mich.	4	5	5	1.5	10.4
54. Bay City, Mich.	3	3	2	1.5	7.6
55. Medford, Mass.	2	6	1	1.5	4.1
56. Niagara Falls, N. Y.	4	14	6	1.5	5.9
57. Sioux Falls, S. D.	3	3	3	1.5	7.6
58. Lancaster, Pa.	4	4	2	1.5	8.4
59. Wilkes-Barre, Pa.	3	2	2	1.5	5.2
60. Johnstown, Pa.	4	1	8	1.6	8.4
61. Pueblo, Colo.	5	1	8	1.7	10.5
62. Royal Oak, Mich.	5	5	3	1.7	9.4
63. Macon, Ga.	5	2	4	1.7	9.5
64. Waterloo, Iowa	4	4	3	1.7	8.2
All cities in this group				1.7	8.4
65. Joliet, Ill.	5	7	5	1.8	10.8
66. Green Bay, Wis.	4	6	4	1.8	10.1
67. Tucson, Ariz.	11	10	0	1.9	27.8
68. Battle Creek, Mich.	5	0	5	1.9	12.9
69. Portsmouth, Va.	4	4	2	1.9	6.7
70. Davenport, Iowa	5	3	4	2.0	9.0
71. West Allis, Wis.	3	2	1	2.0	7.2
72. Decatur, Ill.	6	4	2	2.0	10.8
73. Lorain, Ohio	4	4	2	2.0	10.4
74. Durham, N. C.	5	3	2	2.0	9.4
75. Waco, Texas	7	10	6	2.2	11.0
76. Covington, Ky.	4	5	3	2.2	8.3
77. Passaic, N. J.	3	3	2	2.2	6.9
78. Binghamton, N. Y.	6	2	5	2.2	9.9
79. Pomona, Calif.	5	2	7	2.4	11.3
80. Bethlehem, Pa.	5	7	3	2.4	10.1
81. Aurora, Ill.	5	0	2	2.4	11.7
82. Sioux City, Iowa	6	10	0	2.4	9.5
83. Stockton, Calif.	11	6	7	2.5	19.5
84. Winston-Salem, N. C.	9	4	4	2.5	13.7
85. Columbia, S. C.	8	4	3	2.5	11.1
86. Compton, Calif.	7	4	6	2.7	14.6
87. Roanoke, Va.	8	3	8	2.7	11.6
88. Beaumont, Texas	9	3	8	2.7	12.8
89. Greensboro, N. C.	9	4	4	2.8	16.1
90. Saginaw, Mich.	11	8	9	2.8	15.8
91. St. Petersburg, Fla.	16	13	15	2.8	22.1
92. East Orange, N. J.	6	7	3	2.9	10.1
93. Brockton, Mass.	5	0	4	3.0	10.6
94. Portland, Me.	6	11	4	3.0	10.3
95. Woonsocket, R. I.	4	2	4	3.1	10.6
96. San Bernardino, Calif.	12	8	10	3.2	19.3
97. Springfield, Mo.	9	2	5	3.2	18.0
98. Asheville, N. C.	7	1	7	3.5	17.6
99. Gadsden, Ala.	4	3	3	3.5	9.6
100. Santa Monica, Calif.	8	5	7	3.8	14.2
101. Wheeling, W. Va.	7	4	5	4.2	15.8
102. Atlantic City, N. J.	4	10	7	4.2	8.6
103. Hammond, Ind.	15	9	5	5.5	22.8
104. Fort Smith, Ark.	10	4	2	6.4	23.7
Group VIII (25,000 to 50,000)					
1. Yakima, Wash.	0	2	0	0.0	0.0
2. Billings, Mont.	0	0	3	0.0	0.0

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
3. Ann Arbor, Mich.	0	2	1	0.0	0.0
4. Spartanburg, S. C.	0	2	4	0.0	0.0
5. Poughkeepsie, N. Y.	0	1	2	0.0	0.0
6. Kokomo, Ind.	0	1	3	0.0	0.0
7. Casper, Wyo.	0	2	1	0.0	0.0
8. St. Clair Shores, Mich.	0	5	4	0.0	0.0
9. West Haven, Conn.	0	5	5	0.0	0.0
10. Richmond, Ind.	0	1	1	0.0	0.0
11. Great Falls, Mont.	0	2	3	0.0	0.0
12. Rock Island, Ill.	0	7	2	0.0	0.0
13. Enid, Okla.	0	1	2	0.0	0.0
14. Cuyahoga Falls, Ohio	0	4	0	0.0	0.0
15. Bloomington, Ind.	0	0	0	0.0	0.0
16. Fargo, N. D.	0	0	2	0.0	0.0
17. Eau Clair, Wis.	0	1	3	0.0	0.0
18. Arlington, Mass.	0	0	2	0.0	0.0
19. Rome, N. Y.	0	0	0	0.0	0.0
20. Elmhurst, Ill.	0	0	0	0.0	0.0
21. Galesburg, Ill.	0	1	2	0.0	0.0
22. Wausau, Wis.	0	1	2	0.0	0.0
23. Kingston, N. Y.	0	0	0	0.0	0.0
24. Daly City, Calif.	0	1	0	0.0	0.0
25. Jackson, Tenn.	0	0	4	0.0	0.0
26. Mason City, Iowa	0	1	0	0.0	0.0
27. Walla Walla, Wash.	0	1	0	0.0	0.0
28. Fond du Lac, Wis.	0	1	0	0.0	0.0
29. Chicago Heights, Ill.	0	1	3	0.0	0.0
30. New Kensington, Pa.	0	1	1	0.0	0.0
31. New London, Conn.	0	3	1	0.0	0.0
32. Richfield, Minn.	0	0	0	0.0	0.0
33. Greenville, Miss.	0	1	0	0.0	0.0
34. Burlington, Vt.	0	0	1	0.0	0.0
35. Shaker Heights, Ohio	0	0	0	0.0	0.0
36. Urbana, Ill.	0	1	2	0.0	0.0
37. Winona, Minn.	0	6	4	0.0	0.0
38. Concord, N. H.	0	1	3	0.0	0.0
39. Annapolis, Md.	0	1	3	0.0	0.0
40. Las Vegas, Nev.	1	0	7	0.4	3.0
41. Boise, Idaho	1	3	3	0.4	3.9
42. Lafayette, Ind.	1	0	0	0.6	3.3
43. Tallahassee, Fla.	1	0	0	0.6	3.5
44. Elmira, N. Y.	1	2	1	0.6	2.7
45. Council Bluffs, Iowa	1	4	1	0.6	2.9
46. Vallejo, Calif.	1	3	4	0.6	3.8
47. Plainfield, N. J.	1	1	2	0.6	3.1
48. Zanesville, Ohio	1	3	1	0.7	3.3
49. La Crosse, Wis.	1	4	0	0.7	2.8
50. Appleton, Wis.	1	2	3	0.7	3.9
51. Culver City, Calif.	1	2	5	0.7	4.2
52. Tuscaloosa, Ala.	1	4	4	0.7	2.9
53. Bellingham, Wash.	1	4	3	0.7	3.6
54. Rome, Ga.	1	3	2	0.7	4.5
55. Newburgh, N. Y.	1	1	2	0.7	4.2
56. West Hartford, Conn.	1	3	2	0.8	3.0
57. Oxnard, Calif.	1	8	3	0.8	4.6
58. Ferndale, Mich.	1	2	1	0.8	4.5
59. Gainesville, Fla.	1	1	0	0.8	4.9
60. Granite City, Ill.	1	4	2	0.9	3.9
61. Maywood, Ill.	1	2	1	0.9	4.8
62. Hamden, Conn.	1	3	2	0.9	4.5
63. Norwich, Conn.	1	4	1	0.9	3.5
64. Reno, Nev.	2	1	2	0.9	8.2
65. West Orange, N. J.	1	1	2	0.9	4.7
66. Fitchburg, Mass.	1	2	1	1.0	3.1
67. White Plains, N. Y.	2	4	2	1.0	6.1
68. Torrington, Conn.	1	0	2	1.0	4.8
69. Hackensack, N. J.	1	2	3	1.0	4.6
70. St. Louis Park, Minn.	1	1	2	1.0	3.8
71. Kearny, N. J.	1	3	8	1.0	3.3
72. St. Cloud, Minn.	1	2	3	1.0	4.7
73. Bangor, Me.	1	2	2	1.0	4.2
74. High Point, N. C.	2	2	0	1.1	6.7
75. Muskegon, Mich.	3	2	0	1.1	8.3
76. Freeport, Ill.	1	2	0	1.1	5.3
77. Waukegan, Ill.	2	4	1	1.2	5.8
78. Teaneck, N. J.	1	1	6	1.2	3.9
79. Beverly Hills, Calif.	2	3	2	1.2	8.8
80. Oak Ridge, Tenn.	1	2	2	1.2	4.7
81. Cheyenne, Wyo.	2	0	0	1.2	8.4
82. Easton, Pa.	2	3	2	1.3	7.5
83. Bristol, Conn.	1	3	3	1.3	3.7
84. Elyria, Ohio	2	1	0	1.3	8.8
85. Mansfield, Ohio	3	8	1	1.3	9.2
86. Grand Forks, N. D.	1	2	1	1.3	5.0
87. Owensboro, Ky.	2	4	1	1.3	7.9
88. Bloomfield, N. J.	2	1	1	1.4	5.4
89. Hagerstown, Md.	2	1	4	1.4	7.4
90. Mt. Lebanon, Pa.	1	0	0	1.4	5.0
91. Palo Alto, Calif.	3	4	1	1.4	9.8
92. Hamtramck, Mich.	2	3	2	1.5	6.2
93. Sheboygan, Wis.	2	2	2	1.5	6.3
94. Oshkosh, Wis.	2	1	1	1.5	6.5
95. Marion, Ohio	2	0	2	1.5	7.9
All cities in this group				1.5	7.5
96. Daytona Beach, Fla.	2	3	1	1.6	8.8
97. Elkhart, Ind.	3	0	2	1.6	10.3
98. East Cleveland, Ohio	2	1	2	1.6	6.7
99. Portsmouth, Ohio	2	8	6	1.6	7.3
100. Chicopee, Mass.	2	2	4	1.6	5.4
101. Belmont, Mass.	1	1	1	1.6	4.6
102. Rochester, Minn.	2	0	2	1.7	8.9
103. Odessa, Texas	4	1	1	1.7	18.1
104. Midland, Texas	3	2	0	1.7	12.1
105. Coral Gables, Fla.	2	6	2	1.7	9.1
106. Michigan City, Ind.	2	1	1	1.7	8.4
107. Park Forest, Ill.	1	1	0	1.8	4.8
108. Steubenville, Ohio	2	1	2	1.8	7.4
109. Everett, Wash.	3	1	4	1.8	11.5
110. Linden, N. J.	2	2	5	1.8	8.7
111. Vineland, N. J.	2	9	6	1.8	8.1
112. Elgin, Ill.	3	4	3	1.8	8.4
113. Lockport, N. Y.	2	2	2	1.9	10.6
114. Monrovia, Calif.	2	3	0	1.9	10.6
115. Wyandotte, Mich.	4	2	3	1.9	14.5
116. Parma, Ohio	3	3	3	1.9	13.8
117. Tyler, Texas	4	3	3	2.0	13.3
118. San Leandro, Calif.	4	1	3	2.0	16.3
119. Manitowoc, Wis.	2	0	1	2.0	9.7
120. Petersburg, Va.	2	4	2	2.1	7.6
121. Moline, Ill.	3	4	3	2.1	9.9
122. Fairfield, Conn.	2	3	6	2.1	8.8
123. Albany, Ga.	3	6	2	2.1	12.8
124. Salina, Kan.	3	1	1	2.2	12.3
125. Warren, Ohio	5	5	4	2.2	13.4
126. Lwr. Merion Twp., Pa.	3	3	3	2.3	8.2
127. Kettering, Ohio	4	2	1	2.3	14.0
128. Champaign, Ill.	3	4	1	2.4	8.9
129. Danbury, Conn.	3	3	0	2.5	13.2
130. Barberton, Ohio	3	1	1	2.6	14.4
131. Wilmington, N. C.	4	5	4	2.6	11.8
132. Euclid, Ohio	3	5	1	2.6	9.7
133. Bloomington, Ill.	3	0	1	2.6	11.1
134. Lynchburg, Va.	4	3	2	2.9	11.2
135. Wauwatosa, Wis.	4	2	2	2.9	16.0
136. Highland Pk., Mich.	5	4	7	3.2	14.4
137. Pocatello, Idaho	4	1	0	3.2	19.7
138. Rapid City, S. D.	4	3	2	3.2	21.1
139. Meriden, Conn.	4	5	4	3.2	12.1
140. Milford, Conn.	3	1	2	3.3	14.9
141. Montclair, N. J.	3	2	2	3.3	9.1
142. Beloit, Wis.	4	0	0	3.3	18.0
143. Mishawaka, Ind.	4	1	0	3.3	16.2
144. East Hartford, Conn.	4	2	1	3.4	17.8
145. Quincy, Ill.	5	4	3	3.4	15.7
146. Sandusky, Ohio	4	1	2	3.4	18.1
147. Newport News, Va.	4	0	1	3.6	12.6
148. Provo, Utah.	3	4	2	3.6	13.8
149. Vancouver, Wash.	7	3	0	3.8	22.2
150. Middletown, Conn.	3	4	0	3.9	13.5
151. Danville, Va.	5	4	2	4.0	14.9
152. Fairmont, W. Va.	4	0	0	4.0	18.2
153. West Covina, Calif.	4	3	5	4.3	13.0
154. Middletown, Ohio	7	3	2	4.7	27.7
155. Stratford, Conn.	6	0	0	5.0	24.0
156. Clearwater, Fla.	7	5	2	5.2	32.1
157. Lincoln Park, Mich.	7	5	2	5.4	31.8
158. Superior, Wis.	5	3	3	6.3	18.9
159. Greenwich, Conn.	8	4	5	6.6	26.1
160. Manchester, Conn.	8	9	2	7.5	31.3
161. Revere, Mass.	6	3	2	8.1	20.2
162. Norwalk, Conn.	9	6	5	8.5	24.2

Group IX (10,000 to 25,000)

1. Kingsport, Tenn.	0	0	0	0.0	0.0
2. Benton Harbor, Mich.	0	1	3	0.0	0.0
3. Pasadena, Texas	0	0	4	0.0	0.0
4. Fort Myers, Fla.	0	1	0	0.0	0.0
5. Fair Lawn, N. J.	0	0	3	0.0	0.0
6. Waukesha, Wis.	0	3	2	0.0	0.0
7. Austin, Minn.	0	1	0	0.0	0.0
8. Sumter, S. C.	0	0	2	0.0	0.0
9. Lodi, Calif.	0	2	0	0.0	0.0
10. Uniontown, Pa.	0	1	1	0.0	0.0
11. Longview, Wash.	0	0	1	0.0	0.0
12. Hazel Park, Mich.	0	2	3	0.0	0.0
13. Kinston, N. C.	0	1	0	0.0	0.0
14. Richland, Wash.	0	1	0	0.0	0.0
15. Fremont, Ohio	0	4	0	0.0	0.0
16. La Grange, Ill.	0	0	0	0.0	0.0
17. Floral Park, N. Y.	0	0	0	0.0	0.0
18. Lufkin, Texas	0	0	1	0.0	0.0
19. Meadville, Pa.	0	1	1	0.0	0.0
20. Hanford, Calif.	0	0	1	0.0	0.0
21. Ames, Iowa	0	1	1	0.0	0.0
22. Plainview, Texas	0	0	1	0.0	0.0
23. Bismarck, N. D.	0	0	0	0.0	0.0
24. Port Chester, N. Y.	0	2	1	0.0	0.0
25. Sedalia, Mo.	0	0	0	0.0	0.0
26. Whitefish Bay, Wis.	0	0	0	0.0	0.0
27. Frederick, Md.	0	0	1	0.0	0.0
28. Bloomington, Minn.	0	2	2	0.0	0.0
29. Huntington, Ind.	0	2	0	0.0	0.0
30. Frankfort, Ind.	0	0	0	0.0	0.0
31. Goshen, Ind.	0	1	0	0.0	0.0
32. North Platte, Neb.	0	0	0	0.0	0.0
33. Pittsburg, Calif.	0	1	0	0.0	0.0
34. Denton, Texas	0	3	0	0.0	0.0
35. Bristol, Pa.	0	0	1	0.0	0.0
36. Hibbing, Minn.	0	0	0	0.0	0.0
37. Caldwell, Idaho	0	0	0	0.0	0.0
38. Jeffersonville, Ind.	0	0	2	0.0	0.0
39. Valparaiso, Ind.	0	0	1	0.0	0.0
40. Pittsburg, Kan.	0	0	0	0.0	0.0
41. Connersville, Ind.	0	0	1	0.0	0.0
42. Highland Park, Ill.	0	1	7	0.0	0.0
43. Peru, Ind.	0	1	0	0.0	0.0
44. Mt. Vernon, Ill.	0	1	2	0.0	0.0
45. Cape Girardeau, Mo.	0	1	1	0.0	0.0
46. W. Springfield, Mass.	0	4	1	0.0	0.0
47. So. St. Paul, Minn.	0	0	2	0.0	0.0
48. Sterling, Ill.	0	0	0	0.0	0.0
49. Emporia, Kan.	0	0	0	0.0	0.0
50. Wisconsin Rpds., Wis.	0	0	1	0.0	0.0
51. Xenia, Ohio	0	2	0	0.0	0.0
52. Bellevue, Pa.	0	0	0	0.0	0.0
53. East Lansing, Mich.	0	0	1	0.0	0.0
54. Highland Park, Texas	0	0	0	0.0	0.0
55. Moorhead, Minn.	0	0	1	0.0	0.0
56. Elmwood Park, Ill.	0	1	3	0.0	0.0
57. Canton, Ill.	0	0	0	0.0	0.0
58. North Adams, Mass.	0	1	3	0.0	0.0
59. Newton, Kan.	0	1	0	0.0	0.0
60. Norfolk, Neb.	0	0	0	0.0	0.0
61. Attleboro, Mass.	0	0	1	0.0	0.0
62. Stevens Point, Wis.	0	2	0	0.0	0.0
63. Mt. Pleasant, Mich.	0	1	0	0.0	0.0
64. Owatonna, Minn.	0	0	0	0.0	0.0
65. Faribault, Minn.	0	1	0	0.0	0.0
66. Rocky River, Ohio	0	0	1	0.0	0.0
67. East Moline, Ill.	0	0	0	0.0	0.0
68. Winfield, Kan.	0	0	0	0.0	0.0
69. Lamesa, Texas	0	0	0	0.0	0.0
70. Fergus Falls, Minn.	0	0	0	0.0	0.0
71. Bristol, Va.	0	0	1	0.0	0.0
72. St. Joseph, Mich.	0	0	0	0.0	0.0
73. So. Orange, N. J.	0	0	0	0.0	0.0
74. River Rouge, Mich.	0	3	2	0.0	0.0
75. Albany, Calif.	0	0	0	0.0	0.0
76. Gardner, Mass.	0	1	0	0.0	0.0
77. Hopewell, Va.	0	2	1	0.0	0.0
78. Garden City, Kan.	0	2	0	0.0	0.0
79. Conneaut, Ohio	0	0	0	0.0	0.0
80. Villa Park, Ill.	0	1	5	0.0	0.0
81. Mitchell, S. D.	0	0	1	0.0	0.0
82. Atchison, Kan.	0	1	2	0.0	0.0
83. Marshfield, Wis.	0	0	1	0.0	0.0
84. Darien, Conn.	0	1	5	0.0	0.0
85. Virginia, Minn.	0	1	0	0.0	0.0
86. Albion, Mich.	0	2	0	0.0	0.0
87. State College, Pa.	0	0	0	0.0	0.0
88. Du Bois, Pa.	0	1	0	0.0	0.0
89. Hornell, N. Y.	0	0	0	0.0	0.0
90. Red Wing, Minn.	0	0	1	0.0	0.0
91. Bemidji, Minn.	0	0	2	0.0	0.0
92. Moscow, Idaho	0	0	0	0.0	0.0
93. Cadillac, Mich.	0	0	1	0.0	0.0
94. La Salle, Ill.	0	0	2	0.0	0.0
95. Two Rivers, Wis.	0	0	0	0.0	0.0
96. Bellaire, Ohio	0	0	3	0.0	0.0
97. West Lafayette, Ind.	0	0	1	0.0	0.0
98. Webster, Mass.	0	0	1	0.0	0.0
99. Ashland, Wis.	0	1	0	0.0	0.0
100. Fairfield, Ala.	0	0	2	0.0	0.0
101. Amherst, Mass.	0	0	0	0.0	0.0
102. Takoma Park, Md.	0	1	0	0.0	0.0
103. Donora, Pa.	0	1	0	0.0	0.0
104. Modesto, Calif.	2	3	3	0.7	15.3
105. Aurora, Colo.	1	0	0	0.7	11.7
106. Ventura, Calif.	1	2	2	0.7	8.1
107. Santa Cruz, Calif.	1	1	1	0.8	5.8
108. Robbinsdale, Minn.	1	1	0	0.8	11.8
109. So. Euclid, Ohio	1	1	1	0.8	8.6
110. Boulder, Colo.	1	0	0	0.9	6.7
111. Janesville, Wis.	1	0	0	0.9	5.3
112. Findlay, Ohio	1	2	2	0.9	5.6
113. La Mesa, Calif.	1	2	2	0.9	5.7
114. Greensburg, Pa.	1	1	1	0.9	7.9
115. Westfield, N. J.	1	1	0	1.0	6.3
116. Rock Hill, S. C.	1	1	3	1.0	5.4
117. Shorewood, Wis.	1	0	3	1.0	8.2
118. El Cerrito, Calif.	1	2	0	1.0	5.6
119. Bell, Calif.	1	2	0	1.1	7.2
120. Lawrence, Kan.	1	0	0	1.1	5.7
121. Mankato, Minn.	1	2	0	1.1	7.1
122. Houma, La.	1	0	0	1.1	7.6
123. Rahway, N. J.	1	2	5	1.1	6.2
124. Morristown, N. J.	1	0	0	1.1	7.8
125. Kenmore, N. Y.	1	0	1	1.2	6.6
126. Wooster, Ohio	1	1	1	1.2	9.5
127. Homewood, Ala.	1	0	1	1.2	7.4
128. Tiffin, Ohio	1	0	0	1.3	7.0
129. East Haven, Conn.	1	0	0	1.3	10.9
130. Denison, Texas	1	4	2	1.4	7.6
131. Ashland, Ohio	1	1	2	1.4	9.3
132. Mt. Clemens, Mich.	2	0	1	1.4	15.7
133. Marietta, Ohio	1	0	1	1.4	8.3
134. Streator, Ill.	1	0	0	1.4	7.6
135. Cranford, N. J.	1	0	0	1.5	7.2
136. Birmingham, Mich.	3	0	1	1.5	25.8
137. So. Portland, Me.	1	0	0	1.5	6.1
138. Wilmette, Ill.	1	3	1	1.5	6.7

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
139. Port Angeles, Wash.	1	0	1	1.5	11.2
140. Wheaton, Ill.	1	1	0	1.5	7.2
141. Johnson City, N. Y.	1	0	0	1.5	6.9
142. McAlester, Okla.	1	0	0	1.6	7.4
143. Maple Heights, Ohio	**1**	**3**	**2**	**1.6**	**8.5**
144. Butler, Pa.	2	0	2	1.6	11.4
145. Stillwater, Okla.	1	0	0	1.6	6.6
146. Cedar Falls, Iowa	1	1	1	1.6	9.3
147. Monroe, N. C.	1	1	2	1.6	13.2
148. Arkansas City, Kan.	1	1	0	1.6	9.4
149. Ypsilanti, Mich.	2	1	1	1.6	14.6
All cities in this group				1.6	9.3
150. Suffolk, Va.	1	1	1	1.7	10.8
151. Holland, Mich.	2	0	0	1.7	16.7
152. Greenwood, Miss.	1	0	3	1.7	7.3
153. Brainerd, Minn.	1	0	1	1.7	10.6
154. Monroe, Mich.	2	1	0	1.7	12.4
155. Massena, N. Y.	1	0	0	1.7	10.2
156. Niles, Ohio	**1**	**2**	**1**	**1.7**	**7.9**
157. Antioch, Calif.	1	1	0	1.8	8.6
158. Sweetwater, Texas	1	1	1	1.8	9.8
159. Brookfield, Ill.	1	0	0	1.8	6.8
160. Astoria, Ore.	**1**	**2**	**1**	**1.8**	**10.8**
161. Boone, Iowa	1	1	1	1.8	10.9
162. Brawley, Calif.	**1**	**2**	**1**	**1.9**	**10.2**
163. Hollywood, Fla.	3	0	3	2.0	17.5
164. Winnetka, Ill.	1	0	0	2.0	10.2
165. Shelton, Conn.	1	0	0	2.1	10.5
166. East Detroit, Mich.	3	3	0	2.1	19.6
167. Carlsbad, N. M.	2	2	0	2.1	14.8
168. Escanaba, Mich.	**1**	**3**	**3**	**2.2**	**8.8**
169. Beaver Dam, Wis.	1	1	0	2.2	11.2

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
170. Ansonia, Conn.	1	0	1	2.2	7.1
171. Sherman, Texas	2	0	2	2.2	13.2
172. Vernon, Conn.	**1**	**2**	**0**	**2.2**	**13.2**
173. Mansfield, Conn.	1	1	3	2.3	13.3
174. Ocala, Fla.	**2**	**5**	**0**	**2.3**	**22.8**
175. Bowling Green, Ohio	1	0	0	2.3	11.1
176. Bellefontaine, Ohio	1	0	1	2.3	13.0
177. Webster Groves, Mo.	2	0	0	2.3	11.4
178. Charles City, Iowa	1	0	1	2.4	12.9
179. River Forest, Ill.	1	0	1	2.4	11.6
180. North Miami, Fla.	**1**	**2**	**3**	**2.4**	**5.7**
181. Minot, N. D.	2	1	0	2.4	12.1
182. Rialto, Calif.	**1**	**5**	**—**	**2.4**	**11.3**
183. Westport, Conn.	**2**	**3**	**3**	**2.5**	**22.8**
184. Victoria, Texas	3	0	1	2.5	24.8
185. Los Alamos, N. M.	1	0	0	2.5	9.9
186. Traverse City, Mich.	2	2	0	2.6	15.7
187. Owosso, Mich.	2	1	0	2.6	16.8
188. Ironwood, Mich.	1	1	1	2.6	11.6
189. Winchester, Conn.	1	0	0	2.6	12.7
190. Swampscott, Mass.	1	0	1	2.7	10.2
191. Windsor, Conn.	**1**	**3**	**3**	**2.7**	**11.3**
192. Ottawa, Ill.	2	1	1	2.7	14.8
193. Edina, Minn.	2	1	0	2.7	12.1
194. Borger, Texas	2	1	2	2.7	14.8
195. Groton, Conn.	**1**	**4**	**2**	**2.7**	**6.1**
196. Milford, Mass.	1	0	0	2.8	8.5
197. Muscatine, Iowa	**2**	**3**	**1**	**2.8**	**14.1**
198. Aberdeen, S. D.	2	1	0	2.8	12.7
199. Branford, Conn.	**1**	**5**	**5**	**2.8**	**12.2**
200. Reidsville, N. C.	2	0	1	2.8	22.8
201. Ridgefield Pk., N. J.	1	0	1	2.9	11.1

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
202. Texarkana, Ark.	2	0	3	2.9	13.6
203. Middleborough, Mass.	**1**	**3**	**2**	**3.0**	**12.0**
204. Leominster, Mass.	2	0	1	3.0	10.8
205. Oswego, N. Y.	2	0	0	3.1	11.8
206. Niles, Mich.	3	1	0	3.1	30.5
207. Garland, Texas	3	0	0	3.1	37.7
208. Klamath Falls, Ore.	4	0	0	3.2	28.1
209. Alpena, Mich.	2	2	0	3.2	20.4
210. Florence, S. C.	3	0	3	3.2	17.8
211. Derby, Conn.	1	0	0	3.2	12.9
212. St. Augustine, Fla.	2	0	0	3.2	19.6
213. Statesville, N. C.	3	1	0	3.2	23.7
214. Wallingford, Conn.	**2**	**4**	**1**	**3.3**	**15.7**
215. Stoughton, Mass.	1	0	2	3.3	9.6
216. Newport Beach, Calif.	2	2	3	3.3	12.6
217. Redlands, Calif.	3	2	3	3.4	18.8
218. Greeley, Colo.	4	2	1	3.6	26.1
219. Muskegon Hts., Mich.	2	1	1	3.6	14.2
220. Naugatuck, Conn.	2	0	1	3.8	15.3
221. Windham, Conn.	**2**	**4**	**1**	**3.9**	**16.8**
222. Grosse Pt. Wds., Mich.	1	0	0	3.9	12.8
223. Monterey, Calif.	3	0	5	4.1	18.3
224. Rye, N. Y.	2	0	1	4.2	22.8
225. Kennewick, Wash.	3	0	0	4.2	29.2
226. Martinsburg, W. Va.	3	0	0	4.3	25.6
227. Albert Lea, Minn.	3	0	0	4.4	29.6
228. Livermore, Calif.	2	0	0	4.4	26.2
229. Roseville, Mich.	5	1	0	4.4	42.2
230. Ecorse, Mich.	2	0	2	4.4	14.9
231. Dyersburg, Tenn.	2	0	0	4.5	24.5

Turn Page

TRAFFIC DEATHS—STATE RECORDS

Deaths are reported by state traffic authorities.

Population Rate: U. S. population rate is the estimated annual number of deaths per 100,000 population, assuming that deaths for the rest of the year will follow the normal seasonal pattern. State population rate is the estimated annual number of deaths per 100,000 population, assuming that the monthly average of deaths will remain at the present average for the rest of the year. Population rates are based on July 1, 1956, population estimates, U. S. Bureau of the Census, Washington, D. C.

States shown in heavy type have improved in 1957 compared with 1956, or showed no change. All figures are provisional.

Mileage Rate: The number of deaths per 100 million vehicle miles of travel.

(Figures in parenthesis following the 1957 mileage rate indicate the number of months for which the mileage rate is calculated for each state.)

	Months Reported	Deaths Identical Periods 1957	1956	1955	% Changes 1956 to 1957	1955 to 1957	1957 Pop. Rate	1957 Mile. Rate	
TOTAL U.S.	9	28,110	28,910	26,949	— 3%	+ 4%	22.2	5.5	(7)
Ala.	9	668	714	563	— 6%	+ 19%	28.4	8.1	(7)
Ariz.	9	319	319	249	0%	+ 28%	40.2	8.5	(7)
Ark.	9	351	335	278	+ 5%	+ 26%	25.8	9.2	(3)
Calif.	9	2,662	2,685	2,348	— 1%	+ 13%	26.4	5.4	(7)
Colo.	9	271	303	303	— 11%	— 11%	22.4	4.1	(6)
Conn.	9	201	220	227	— 9%	— 11%	12.0	3.0	(6)
Del.	9	66	69	76	— 4%	— 13%	21.9	4.6	(7)
D. of C.	9	49	40	48	+ 23%	+ 2%	7.5	2.6	(6)
Fla.	9	766	892	683	— 14%	+ 12%	27.1	5.5	(7)
Ga.	9	673	808	729	— 17%	— 8%	24.2	6.2	(7)
Idaho	9	144	195	132	— 26%	+ 9%	30.7	6.3	(6)
Ill.	9	1,504	1,511	1,481	0%	+ 2%	21.3	6.3	(6)
Ind.	9	823	846	804	— 3%	+ 2%	24.9	4.9	(7)
Iowa	9	511	513	439	0%	+ 16%	25.3	6.1	(8)
Kans.	9	402	489	423	— 18%	— 5%	25.5	5.2	(7)
Ky.	9	565	539	559	+ 5%	+ 1%	25.0	7.4	(7)
La.	9	560	618	440	— 9%	+ 27%	24.8	7.1	(8)
Me.	9	97	113	118	— 14%	— 18%	14.2	3.2	(7)
Md.	9	405	387	360	+ 5%	+ 13%	19.2	5.2	(7)
Mass.	9	351	395	365	— 11%	— 4%	9.7	2.6	(7)
Mich.	9	1,069	1,260	1,345	— 15%	— 21%	19.0	4.7	(7)
Minn.	9	480	443	426	+ 8%	+ 13%	19.7	4.6	(7)
Miss.	9	362	384	336	— 6%	+ 8%	22.7	6.5	(7)
Mo.	9	712	809	739	— 12%	— 4%	22.3	5.1	(7)
Mont.	9	152	200	161	— 24%	— 6%	31.8	5.8	(7)
Neb.	9	211	229	230	— 8%	— 8%	19.9	3.9	(6)
Nev.	9	102	93	129	+ 10%	— 21%	55.1	6.5	(5)
N. H.	9	73	76	81	— 4%	— 10%	17.3	3.6	(7)
N. J.	9	603	547	541	+ 10%	+ 11%	14.9	3.5	(7)
N. M.	9	318	284	254	+ 12%	+ 25%	52.0	8.4	(7)
N. Y.	9	1,512	1,499	1,478	+ 1%	+ 2%	12.4	4.3	(7)
N. C.	9	779	797	776	— 2%	0%	23.5	6.0	(7)
N. D.	9	101	127	105	— 20%	— 4%	20.5	3.5	(7)
Ohio	9	1,456	1,400	1,405	+ 4%	+ 4%	21.3	5.1	(7)
Okla.	9	507	489	411	+ 4%	+ 23%	30.2	6.4	(5)
Ore.	9	315	302	289	+ 4%	+ 9%	24.4	5.6	(6)
Pa.	7	912	980	876	— 7%	+ 4%	14.3	4.1	(7)
R. I.	9	61	47	61	+ 30%	0%	9.8	2.7	(7)
S. C.	9	535	517	495	+ 3%	+ 8%	30.3	8.4	(7)
S. D.	9	129	133	138	— 3%	— 7%	24.7	5.2	(7)
Tenn.	9	482	544	625	— 11%	— 23%	18.6	4.8	(7)
Texas	9	1,795	1,872	1,778	— 4%	+ 1%	26.8	5.7	(7)
Utah	9	155	164	149	— 5%	+ 4%	25.5	5.6	(5)
Vt.	9	71	66	63	+ 8%	+ 13%	25.6	6.1	(7)
Va.	9	653	603	644	+ 8%	+ 1%	23.8	5.6	(7)
Wash.	9	366	373	327	— 2%	+ 12%	18.3	4.2	(7)
W. Va.	9	350	313	256	+ 12%	+ 37%	23.6	7.8	(5)
Wis.	9	658	708	644	— 7%	+ 2%	23.3	5.7	(7)
Wyo.	9	119	130	114	— 8%	+ 4%	49.2	7.1	(7)
CANADIAN PROVINCES									
Alta.	9	172	165	162	+ 4%	+ 6%	24.4		
B. C.	7	127	147	90	— 14%	+ 41%	18.7		
Man.	7	68	59	51	+ 15%	+ 33%	15.0		
Sask.	8	70	53	60	+ 32%	+ 17%	12.6		

	Nine Months 1957	1956	1955	1957 Reg. Rate	1957 Pop. Rate
232. Watertown, Conn.	1	0	0	4.6	12.4
233. Salisbury, N. C.	5	1	4	4.7	33.2
234. Berkley, Mich.	3	0	0	4.7	22.3
235. Beacon, N. Y.	2	0	1	5.5	19.0
236. Hawthorne, N. J.	3	0	0	5.7	27.0
237. Fort Thomas, Ky.	2	1	0	5.7	24.5
238. Livonia, Mich.	7	5	8	6.1	53.3
239. Needham, Mass.	3	1	0	6.1	18.5
240. So. Milwaukee, Wis.	3	1	1	6.2	31.0
241. Grosse Pte. Fk., Mich.	2	1	0	6.2	20.4
242. Van Wert, Ohio	3	0	0	6.6	38.5
243. Napa, Calif.	10	3	0	7.4	87.1
244. Lake Worth, Fla.	7	0	2	7.7	61.0
245. Calumet City, Ill.	5	2	1	7.7	33.4
246. Las Cruces, N. M.	5	1	1	7.8	54.2
247. Wethersfield, Conn.	4	2	1	8.2	42.6
248. Cudahy, Wis.	3	0	1	8.2	32.8
249. Southington, Conn.	3	4	2	9.2	30.5
250. Watertown, Wis.	5	0	3	9.7	53.8
251. Killingly, Conn.	4	2	1	15.4	53.3
252. Stonington, Conn.	2	4	1	17.8	22.6
253. Enfield, Conn.	2	3	2	33.0	17.2
CANADIAN CITIES					
Medicine Hat, Alta.	0	0	0		0.0
Red Deer, Alta.	0	0	0		0.0
Calgary, Alta.	6	8	12		6.2
Edmonton, Alta.	9	14	11		7.5
Vancouver, B. C.	21	28	14		8.1
Toronto, Ont.	82	46	37		8.4
Hamilton, Ont.	20	18	11		12.8
Montreal, Que.	109	90	72		14.2
Lethbridge, Alta.	4	0	4		25.3

Dr. Stack Joins Esso Safety Foundation

Dr. Herbert J. Stack, recently retired director of New York University's Center for Safety Education, has become associated with the Esso Standard Oil Company as consultant to the Esso Safety Foundation.

A leader in safety education for nearly 30 years, Dr. Stack will advise the Esso Safety Foundation on its programs designed to encourage the development of new safety activities at the community, state and national level. The Foundation supports existing traffic programs and promotes new safety activities through extensive training programs and research grants.

After completing his doctorate at Columbia University in 1929, Dr. Stack established the first college course in safety education at that institution. Today, there are over 300 colleges which offer similar courses. Dr. Stack is the author of more than 100 publications concerned with safety education.

He directed N.Y.U.'s Center for Safety Education from its establishment in 1938 until his retirement last month. At that time he became program associate and chairman of the university's Department of Safety Education.

Dr. Stack has been the recipient of many awards and citations in recognition of his contributions in the field of safety education.

MOTOR-VEHICLE DEATHS AND INJURIES BY STATES — 1957 and 1956

Twenty-four states reported more injuries during the first seven months of 1957 than for the same period last year. Eleven states and the District of Columbia recorded fewer injuries and one state showed no change.

For seven months or less 47 states and the District of Columbia reported. Thirty-one states tallied more injuries. Fifteen states and the District of Columbia counted fewer, and one state reported no change from last year.

For the entire reporting period, 19 states and the District of Columbia listed more traffic deaths, 26 states recorded fewer and two states reported no change from last year.

MOTOR-VEHICLE DEATHS AND INJURIES BY STATES 1957 and 1956

	Months Reported **	Deaths 1957	Deaths 1956	Injuries 1957	Injuries 1956	% Changes 1956 to 1957 Deaths	% Changes 1956 to 1957 Injuries	1957 Ratio of Injuries to Deaths
TOTAL								
U. S.	—	17,900	18,484	664,708	638,480	— 3	+ 4	37
Ala.	7	506	530	2,800*	3,274*	— 5	— 14	6
Ariz.	7	251	238	4,468	4,146	+ 5	+ 8	18
Ark.	7	273	237	1,704	1,681	+15	+ 1	6
Calif.	7	1,991	1,985	76,715	72,701	0	+ 6	39
Colo.	7	175	212	5,807	5,910	—17	— 2	33
Conn.	7	150	168	11,632	10,276	—11	+ 13	78
Del.	7	52	49	1,485	1,472	+ 6	+ 1	29
D. of C.	7	39	35	4,050	4,206	+11	— 4	104
Fla.	7	602	700	18,657	18,061	—14	+ 3	31
Ga.	7	529	615	4,620	6,182	—14	— 25	9
Idaho	6	84	109	1,242	1,351	—23	— 8	15
Ill.	7	1,161	1,111	51,296	49,220	+ 5	+ 4	44
Ind.	7	589	624	21,827	21,349	— 6	+ 2	37
Iowa	7	374	385	11,800	11,240	— 3	+ 5	32
Kans.	7	290	355	6,057	6,005	—18	+ 1	21
Ky.	7	439	411	7,838	7,471	+ 7	+ 5	18
La.	2	112	117	1,186	1,224	— 4	— 3	11
Me.	7	71	77	3,168	1,536	— 8	+106	45
Md.	7	307	291	10,680	11,392	+ 5	— 6	35
Mass.	4	114	164	27,419	28,175	—30	— 3	241
Mich.	7	801	945	32,473	33,254	—15	— 2	41
Minn.	7	342	297	12,676	12,523	+15	+ 1	37
Miss.	7	271	284	3,616	3,720	— 5	— 3	13
Mo.	7	541	595	6,609	6,503	— 9	+ 2	12
Mont.	7	109	149	1,411	1,784	—27	— 21	13
Neb.	7	153	163	5,147	4,948	— 6	+ 4	34
Nev.	2	15	14	266	237	+ 7	+ 12	18
N. H.	7	49	53	3,127	3,126	— 8	0	64
N. J.	5	323	304	21,811	21,149	+ 6	+ 3	68
N. M.	7	238	221	2,622	2,276	+ 8	+ 15	11
N. Y.	6	906	952	117,779	102,633	— 3	+ 15	130
N. C.	7	578	593	10,244	10,435	— 3	— 2	18
N. D.	5	30	40	775	683	—25	+ 13	26
Ohio	7	1,092	1,068	44,289	43,467	+ 2	+ 2	41
Okla.	7	377	375	7,777	7,435	+ 1	+ 5	21
Ore.	7	230	224	9,057	9,413	+ 3	— 4	39
Pa.	5	620	678	32,122	33,416	— 9	— 4	52
R. I.	2	9	6	1,190	1,120	+50	+ 6	132
S. C.	7	404	382	6,248	6,501	+ 6	— 4	15
S. D.	7	83	93	1,612	1,488	—11	+ 8	19
Tenn.	7	345	411	7,407	6,454	—17	+ 15	22
Texas	7	1,385	1,359	35,184	33,447	+ 2	+ 5	25
Utah	4	59	59	1,433	1,411	0	+ 2	24
Vt.	7	52	46	1,597	1,405	+13	+ 14	31
Va.								
Wash.	7	253	271	13,153	12,350	— 7	+ 7	52
W. Va.	7	264	238	4,212	4,351	+11	— 3	16
Wis.	3	181	175	5,230	4,902	+ 3	+ 7	29
Wyo.	7	83	96	1,190	1,177	—14	+ 1	14

*Rural injuries only.

**Death and injury totals cover the months reported by all states, as indicated in this column.

BOY SCOUTS GO ALL OUT FOR SAFETY

The Boy Scouts of America's 1958 Safety Good Turn mobilizes an influential segment of the nation's youth in the Attack on Traffic Accidents.

LAST month 2,000 delegates to the 45th National Safety Congress heard a 16-year-old boy outline a program that promises to be one of the most important contributions to the safety movement undertaken in many years.

The boy was Warren Meland of Explorer Post 2912, Chicago Council, Boy Scouts of America. The program he discussed was the Scout Safety Good Turn for 1958—a program that will mobilize four and a half million Scouts for the fight on accidents.

The emphasis on safety is right in line with the Scout's tradition of service to God and Country. In fact, individual scout troops throughout the nation have been identified with safety promotion for years. Although such service to community safety work is not new, the idea of throwing the unified support of the entire Boy Scouts of America organization behind the safety movement is unprecedented.

Its implications for safety are tremendous.

The 1958 Good Turn gives safety people an opportunity they have been waiting for—the opportunity to sell American youth on safety.

It is a well known fact that whoever influences the minds of the youth of a nation molds the future of that nation. If we can successfully win today's youth to the cause of traffic safety, we will have taken a big step toward the solving of tomorrow's traffic problems.

WARREN MELAND addressing opening session of Safety Congress.

During 1958 Scouts will hear about safety . . . it will be woven into the pattern of all Scout doings . . . and they will undertake specific safety projects—sometimes involving other Scouts only, and sometimes as community ventures.

The benefits from this undertaking will show in the specific projects these young people accomplish during the Safety Good Turn Year, but they will be even more apparent in the safety-mindedness, safety practices and safety leadership developed through the Good Turn. The result will be future citizens who are not only aware of the traffic problem, but who have experience in organizing to combat it.

The kick-off of the Safety Good Turn is scheduled for Scout Week, February, 1958. The first three months of the program—March, April and May—are devoted to traffic safety.

Maj. Gen. George C. Stewart, Executive Vice President of the National Safety Council, urges cooperation with the Safety Good Turn.

The Boy Scouts of America have adopted safety for their good turn during 1958. They will work in the areas of traffic, outdoor and home safety.

I am sure you will appreciate the unlimited accident prevention potential offered by the organized efforts of four and one-half million Scouts and their adult leaders, all working in cooperation with their families, neighbors, local business men and local officials. This opportunity presents the greatest challenge in our history to make major advances in preventing accidents.

Scout leaders have been instructed to meet with safety leaders to discuss problems, determine plans, set up leadership, arrange for cooperation and to develop a schedule of action. Therefore, as an active supporter of safety you may be contacted by the Scout leaders and local safety organization of your community.

The purpose of this message is to urge you to take the initiative and contact the Scouts and offer your assistance. Then, follow up, and give the help needed to insure that constructive projects are planned and executed. This course of action is in complete accord with the requests made to me by national Scout officials who feel that such action will help bring to the Scouts the assistance they should have.

Will you please contact your local Scout official and local safety organization, offering your experience in safety to the Good Turn program?

G C Stewart

Executive Vice President
National Safety Council

June, July and August will feature outdoor safety. In September, October and November the emphasis will be on Home Safety.

The program has already received much publicity in Scout publications and the general press. Greater coverage is planned for 1958.

Blueprint of the program is a 40-page guide, "Live For Tomorrow," which has just come off the press. This will be distributed to Scout leaders throughout the country to help them plan their individual group programs.

The book contains a section on each of the phases of safety covered by the Safety Good Turn. The section on Street and Highway Safety is broken down into the following divisions: Safe Passengers, Safe Pedestrians, Safe Cyclists, Safe Drivers.

Each subdivision discusses the problem, gives rules for staying safe and outlines projects. At the end of each section a check list of safety organizations and available literature and films is given.

The projects include such activities as setting up a model town in a local playground in which the older boys teach the younger safe use of vehicles, using play-wagons and tricycles . . . conducting bicycle rodeos, bicycle game day and reflector campaigns . . . conducting driver skill tests.

Local Scouts are not restricted to the projects suggested in the book. They are encouraged to work with community officials and safety groups to improve their own community's traffic safety operation.

Scout leaders say that their people will look to community safety leaders for direction in the deployment of Scout safety workers. The Scouts have set up a program for training their boys and building safety attitudes. But they are not as conversant with the safety needs of the community as the professional safety people.

The greatest need at this stage of the program planning is to bring Scout and safety organizations together at the local level. Often it is difficult for Scout leaders to find out who is responsible for the community's safety program. The program may be handled by a civic or service organization rather than by a definite safety group. Scout headquarters are much easier to locate.

However, if anyone should have difficulty in locating Scout headquarters in his area, a card to Harold Heldreth at the National Safety Council will put him in touch with the right person.

Once the Scout organization and the safety organization of a community combine to Back the Attack on their home town accidents, the stage is set for effective action. The far-reaching benefits of such action can be attested by countless communities in which Boy Scout participation has greatly helped the local traffic safety effort.

Not long ago the Boy Scouts of Sylacauga, Alabama, performed a near-miracle in the field of traffic safety.

There was a stretch of Highway 91, running between Birmingham and Sylacauga, that was considered by many as one of the most dangerous stretches of highway in America. Fatality records stamped it a killer strip.

The Boy Scouts of Sylacauga came up with an idea: why not tame the killer with one of the 12 points of the Scout Law—Courtesy!

Step one, they suggested, would be to rename this hazardous stretch of road the Courtesy Highway. The Traffic Safety Committee flashed the green light and the plan moved ahead.

Permanent metal signs marked "Courtesy Highway—Be Kind to the Yellow Line" blossomed along the most dangerous stretches of the road. Sylacauga's one-hundred man Exchange Club asked to serve with the Scouts as co-sponsors.

Program Rolls

Thousands of safety handbills began to roll off the presses, thousands of column inches of newspaper space and hundreds of hours of radio time began to plug the Courtesy Highway. An individual motorist's safety pledge was developed, and thousands of drivers signed it. On Saturdays during the drive, uniformed Scouts handed motorists stopping at service stations along the highway a special kit of safety materials.

As the crusade for the Courtesy Highway gathered momentum, fatalities began to drop. The longest fatality-free period the area had ever known had now begun. The Courtesy Highway was extended to Birmingham, again with the cooperation of Boy Scouts, civic groups, and highway officials. Months passed, but still no fatalities marred the amazing safety record.

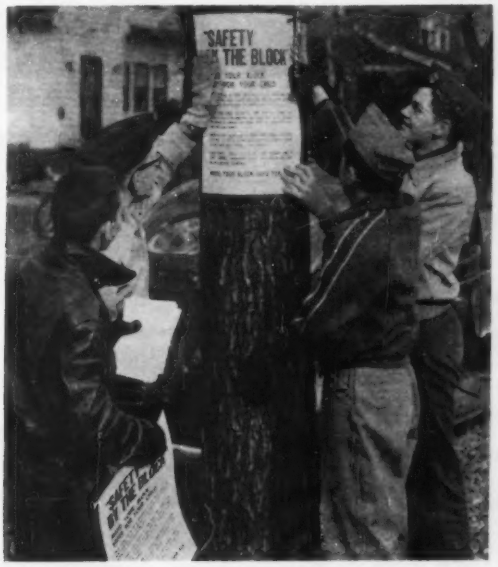
Other stretches of Highway 91 have become part of the Courtesy Highway. Alabama's Killer Highway is dead, because a handful of Boy Scouts had an idea—and did something about it!

In Detroit, a city well known for its vigorous attack on traffic accidents, the Boy Scouts are a recognized part of the accident-fighting army.

Their activities in an intensified "grass roots" program some time ago is typical of the support they offer the Detroit Police Department. The "grass roots" campaign was undertaken by citizen groups to bring traffic safety to Detroit block-by-block, door-to-door, and into every home.

Boy Scouts, working under the direction of safety officers, posted placards throughout residential areas.

SCOUTS AND Scoutmaster plan leaflet distribution strategy in Richmond.



PLACARDS GO up in Detroit's "grass roots" safety education program.

ALL ACROSS THE FACE OF THE NATION THE BOY SCOUTS OF AMERICA ARE MOBILIZING FOR SAFETY

CUB SCOUT makes calls in Dothan Safety Check.

SAFETY ENGINEER and Boy Scout compare notes.

SYLACAUGA SCOUTS who helped tame the Killer Highway.

BURGARD EXPLORERS show what not to do in a car.

They also made door-to-door distribution of traffic safety literature which contained safe walking tips and accident facts of the area.

Boy Scouts in the Metropolitan Detroit Area District Council and in other areas of Michigan plan to cooperate with the Detroit Traffic Safety Association and the Michigan Petroleum Industry Committee in a huge one-week Safety Good Turn Program. As part of this program Scouts will man the gas stations, distributing safety materials during Easter Vacation week.

Richmond, California, offers an example of very close Scout and safety council cooperation. Robert Bales, Scout Master of Troop 148 in that city, is also a director of the East Bay Chapter of the National Safety Council. Naturally, his boys are especially traffic safety conscious.

Their most recent activity was the distribution last June of 6,000 pedestrian safety leaflets and the distribution of 500 window posters on speed control. Sixteen of the boys in the troop are traffic patrol boys.

School Activities

Scouts are spreading the traffic safety message through their schools, too. Some, like the Explorer Scouts at Burgard Vocational High School in Buffalo, New York, are putting on traffic safety shows for their schoolmates.

The Burgard Explorers—with the help of an insurance company safety engineer and his especially equipped car—recently gave a stopping distance demonstration at their school. They also demonstrated what not to do behind the wheel.

These examples show what the zeal of enthusiastic Boy Scouts can accomplish when combined with the experience and know-how of officials and professional safety people. Such feats can be multiplied many times in the coming year if organized safety makes full use of the priceless opportunity the Scouts are offering—an opportunity that will not be equalled for many a day.

The Scouts' safety bandwagon is already rolling in many parts of the country. It will go into top gear as the 1958 Safety Good Turn gets under way. How effectively will it roll in your community? The answer depends on you.

SIGNS OF LIFE PROGRAM

A speeding train, a moving car—and what's to keep the two from colliding should the motorist not hear the train's whistle or see it racing down the track? The answer: a sign, a simple highway marking with the crossbuck on it.

BUT highway signs just stand there. They don't jump in front of the motorist and scream "stop!" They act as silent policemen and are placed at carefully selected locations to protect the public and help move traffic efficiently and safely.

As the middleman in the safety business, your job is to get drivers to know and obey these Signs of Life. Get them on the bandwagon that advocates alertness—they've got to *see* the signs to obey them. Encourage extra slow driving in residential areas so that Stop, Slow and Yield Right of Way signs aren't missed.

Under the banner of Back the Attack on Traffic Accidents you have greater opportunity to point up the fact that courtesy is basic to any traffic safety effort. The expert driver makes courtesy his Code of the Road by thinking of the safety of others. Following the Signs of Life will keep him —and all other motorists and pedestrians—safe.

Strict enforcement of the laws related to the signs and signals will help curb accidents. Official agencies need public support if they are to function properly. One way to get that support is to seek the help of your local Boy Scout troop. Their 1958 "Safety Good Turn" program offers a golden opportunity to increase that support. It will kick off in February and will deal with the traffic safety theme all through March, April and May.

The six basic sign shapes make their messages easy to identify. They state the law and help the driver to prepare for potential danger ahead. The lives and well-being of many in your community will be protected if you get drivers and pedestrians to realize that the Signs of Life are life lines.

SIGNS OF LIFE
Operation Safety
Theme for February

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PLANNING THE

SIGNS OF LIFE PROGRAM

Help traffic officials step up the attack . . . stress uniformity, obedience, recognition, enforcement . . . help make 1958 Traffic Safety's Decisive Year.

AS more miles of highway are laid and larger numbers of automobiles come rolling off the assembly lines, the American public becomes increasingly travel-minded. Today's family thinks nothing of jumping in the family car for a trans-continental jaunt.

And as the country shrinks, travel-wise, the need for uniformity in traffic signs and signals increases.

The millions of motorists traveling unfamiliar highways can only steer a safe course by following the signs and signals along the way. If these vary from state to state—having one meaning in one state and a different meaning in another—the driver is hopelessly confused. Too often this confusion leads to accidents.

Uniformity in traffic signs is not something that can be legislated nationally—this must be done locally. The only hope for uniformity, then, is for each state and municipality to bring its own signs and signals into conformity with those set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways—the model prepared by a joint committee of the American Association of State Highway Officials, the Institute of Traffic Engineers, and the National Conference on Street and Highway Safety. Copies of this manual may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

The logical place for you to start your February program is with a check of your local Signs of Life to see that they conform to the model.

If they do not, take the matter up with officials, and in cooperation with them, map out a plan for speedy action. No matter how fast you move, however, this will be a long-term project. It can be given stronger impact by tying in with the national Back the Attack on Traffic Accidents campaign.

As in all such undertakings, you must first of all find out exactly what steps must be taken to accomplish this job in your community. You must then set out to gain the support of the public.

This should not be difficult since it is to the local public's advantage to have signs that match those of other areas. It protects them from accidents that might be caused by tourists unfamiliar with the local markings. It also will be a help to your citizens when they are traveling in other states if the system they are familiar with at home is the same as that used in most areas.

Regardless of whether your Signs of Life are in complete conformity with the Manual or not (and even though your officials may decide to seek changes) your immediate job during this program will be to see that all signs and markings are in good condition and that the public is impressed with the necessity for *knowing* local signs and signals by shape and of *obeying* them on sight.

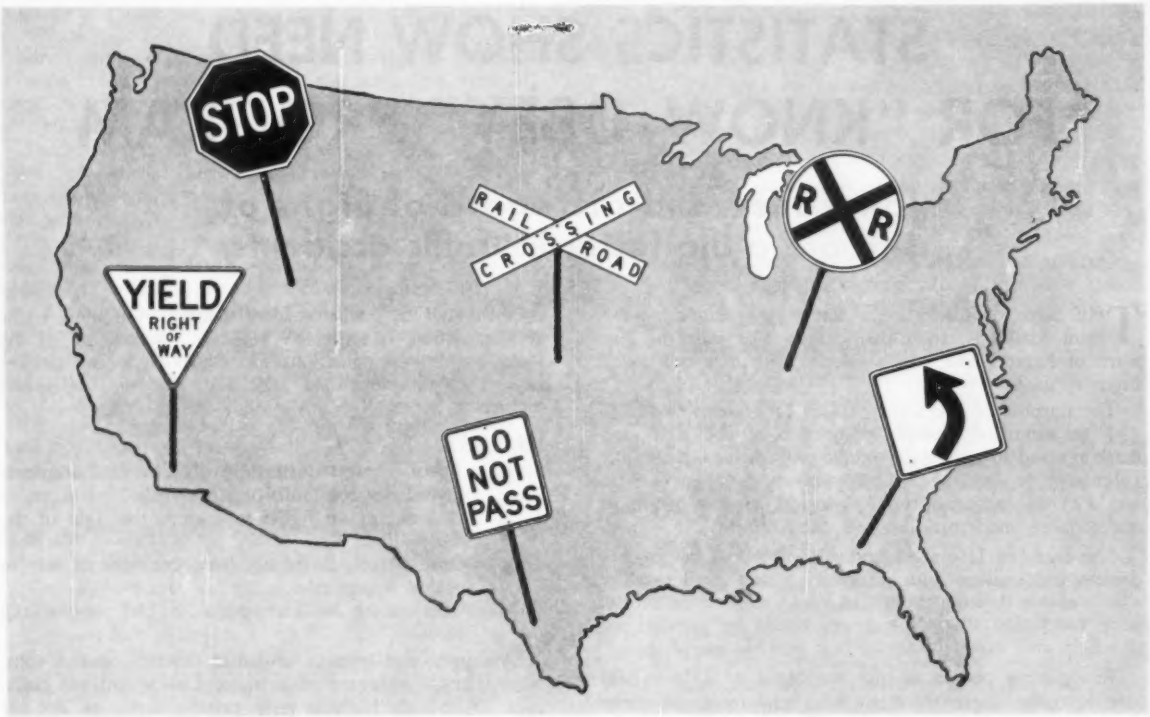
The effectiveness of traffic signs and pavement markings depends a great deal upon their freshness and legibility. Your street and highway maintenance officials may welcome your help in keeping signs and markings in good condition.

You might offer to conduct a survey of the signs and pavement markings in your community to see if replacement or repairs are necessary. If your survey shows that work is needed but the budget will not permit the expenditure, you might offer to help get public support for financing the necessary work.

Discuss with your enforcement officials the possibility of your program supporting a special emphasis designed to tighten up on such violations as

Boy Scout Good Turn

The Boy Scouts of America will kick off their 1958 Safety Good Turn program in February, so be sure to contact the local Boy Scout representative early in your Signs of Life program planning. While the Boy Scout emphasis on traffic safety does not start until March, the local Scout group would probably welcome an opportunity to emphasize the kick-off through mention in your Signs of Life program—particularly since the Scout safety goal is "Live for Tomorrow." Be sure to position the Scout Safety Good Turn as a part of your year-long Back the Attack on Traffic Accidents campaign.



failure to stop at stop signs, light-jumping, driving on the wrong side of the road, recklessness at highway-rail crossings and disregard for posted speed limits.

Also very much interested in the Signs of Life are the railroads. In addition to a public-spirited desire to protect motorists and pedestrians, they are motivated by a desire to protect their property, personnel, and passengers.

In most places the railroads conduct safety education programs, and they will undoubtedly be glad to coordinate with community projects. Their safety officials have the experience and materials necessary and they understand especially the problems of highway-rail crossing accidents and those involving trespassing. The chief safety officer of each railroad has available Signs of Life promotional materials for public education and sample copies are available to local railroad officials on request.

Contact your local railroad officials and work out with them a series of projects highlighting the hazards of highway-rail accidents.

Make use of radio, TV, newspapers to get your story across. You will find statistics on highway-rail accidents on pages 42 and 43. Use these as the basis of your publicity.

Pick out dramatic items such as the fact that most highway-rail accidents occur at crossings marked by protective devices or the equally interesting fact that in about one-third of the highway-rail accidents, the car hits the train.

Dur ..g the program, make a special effort to interest your railroad people in displaying traffic safety posters. They can use them on railroad overpasses, in stations and waiting rooms, on company-owned cars, trucks and switch engines, on poster boards at exits of station parking lots and drives, and in suburban coaches.

Because teaching the public to recognize Signs of Life on sight is the essence of this program, give priority to media in which the presentation can be made visually.

Picture stories in newspapers and magazines are an excellent means of familiarizing the public with the sign shapes. Sometimes a quiz element can be introduced. The series of quiz-type traffic safety ads run by Shell Oil Company some time ago contained a very effective one on Signs of Life.

Chalk talks on TV and at meetings can help teach audiences to associate sign shapes with their correct meanings. Talks in which the actual signs are used as props are even more effective.

Film trailers shown at local theatres, meetings, plants and offices also increase public familiarity with the signs. "Stop Means Stop!", "Sign Language" and "Survival," three of the films in the Operation Safety one-minute film trailer series, available from the National Safety Council are excellent for this purpose.

Posters, of course, should be spotted all over town. The designs shown on page 45 are available from the National Safety Council.

Leaflets, too, are indispensable to the program. The new leaflet, "Signs Make the Way Safe and Pleasant," prepared by the Signs of Life Committee is now ready. There is a picture of the cover design of this leaflet on page 45.

STATISTICS SHOW NEED FOR "KNOW-OBEY" PROGRAM

Ignorance and disregard of Signs of Life are a big factor in traffic accidents.

THE Signs of Life are the traffic signs, signals, pavement markings, and other devices that state the law, warn of hazards and give assistance and protection to all highway users.

The purpose of the Signs of Life program is two-fold: (1) to stimulate prompt recognition of the signs and markings and to encourage complete obedience (preferably voluntary) to them and to the safety rules they represent, and (2) to encourage public support of a program of maintenance, modernization and standardization.

The Signs of Life are literally lifesavers. They provide drivers and walkers with information they need to chart a safe course through traffic. It would seem to be a foregone conclusion that all travelers would be grateful for this help and would make the best possible use of it.

While most people do use the Signs of Life to stay safe in traffic, there are many who tend to ignore them. Even among careful drivers and walkers there is a tendency to become heedless at times and to disregard the warnings of the signs.

That an educational and enforcement program is needed is borne out by traffic accident statistics. In most traffic accidents there is some law violation. Almost all of the violations involve situations for which signs and devices have been developed to regulate traffic and safeguard motorists.

IN 1956 . . .

- Three out of 10 drivers involved in fatal accidents exceeded speed limits or safe speeds.
- One out of 10 failed to keep to the right of the center line.
- One out of 10 did not have the right of way or passed improperly.
- One out of 20 disregarded "STOP" or warning signs.

One particular type of violation deserves special mention. This is disregard of Signs of Life at railroad crossings. Although highway-rail crossing accidents do not account for a high percentage of all traffic accidents, severity is greater than that of other traffic accidents. For this reason an extra effort must be made to warn the public of the danger.

6 BASIC SHAPES Every Driver Must Know . . .

OCTAGON, red with white lettering, means come to a full stop and be sure the way is clear before proceeding. The older stop signs, yellow with black lettering, have the same meaning.

TRIANGLE, yellow with black lettering, the newest of the standard signs. It requires a driver to yield—that is, slow down or stop—to give right of way to cross traffic at intersections.

RECTANGULAR signs, white with black or other color lettering, state the law: parking restrictions, speed limits, turning and passing regulations, etc. Obey these signs and the laws they represent.

DIAMOND shaped yellow signs warn of dangerous or unusual conditions ahead such as curves, side roads, intersections, hills, dips, bumps, school zones, etc. Use extra caution until the hazard is passed.

The ROUND yellow sign with X and RR means just one thing —a highway-railroad crossing is ahead. Be prepared to stop. Obey all protection devices, and be sure ALL tracks are clear before crossing.

Deaths in railroad grade crossing accidents in 1956 numbered 1,416.

Surprisingly, four out of 10 grade crossing collisions occur at crossings protected by warning signs, crossing gates, flashing lights, bells, wig-wag signals or watchmen in addition to the crossbuck and round warning signs.

Another significant fact is that in *one-third of the collisions, the auto strikes the train,* yet the automobile is the more maneuverable vehicle and can stop far more quickly than a train.

The remedy for accidents resulting from disregard of traffic signs, signals, and pavement markings is simple—knowledge of the Signs of Life and obedience to them . . . and stronger enforcement action by police and courts.

Getting the public to apply the remedy is not so simple. The data given on these pages will provide background information for all types of publicity to focus attention on the relationship of Signs of Life to traffic safety—to tie in with the current second phase of the nationwide Back the Attack on Traffic Accidents campaign. The following rules spell out the things the individual must do to make the Signs of Life work for him.

FOR MOTORISTS

- Learn the six basic sign shapes. Know what distinctive type of message each sign shape bears so that you can recognize them quickly and take immediate action.
- Know the meanings of other Signs of Life such as pavement markings, lights, signals and special warning and regulatory devices.
- Obey the Signs of Life under *all* conditions even if the danger is not apparent. Many crashes occur at what appear to be clear intersections.
- Be alert so you will be able to adapt your driving to the situations ahead as indicated by the signs you meet.
- Keep your car in top mechanical condition. You cannot obey traffic signs in a car that will not respond to your demands.
- Adjust your speed to conditions. Speed limit signs state maximum safe speeds Drive at a speed that will enable you to stop in the assured clear distance ahead. Be particularly alert at night.
- Extend every courtesy to other motorists and pedestrians. Yield the right of way to prevent a crash. Come to a full stop at STOP signs.

At Railroad-Highway Crossings

- Be extra cautious when approaching a grade crossing.
- Come to a full stop if there is a train in sight.
- Never drive onto a crossing immediately after a train has passed. Wait just a moment—a train may be coming from another direction.

FOR PEDESTRIANS

- Know all signs, signals and pavement markings directing pedestrian movements.
- Obey them at all times.
- At pedestrian crossings, wait for your signal. Be alert, especially for turning cars. Use the crosswalk—a lifeline for safe walking.
- Teach children to know and obey the Signs of
- Life. Be courteous to other pedestrians and to motorists.

The CROSSBUCK is the traditional symbol at highway-railroad intersections. Alone, or in combination with a bell, flashing lights, gates or other protection, it is there to warn you. Only YOU can insure your safety!

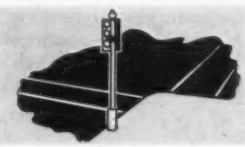
WHEN YOU DRIVE AND WHEN YOU WALK

Obey All Traffic Signs, Signals and Pavement Markings!

ON THE HIGHWAY . . . Center and lane lines and no-passing markings are Life Lines. Never cross a no-passing line.

SIGNS OF LIFE are traffic signs, signals and devices, and pavement markings—your *life lines.* They protect you. Respect them and the laws and common sense rules they stand for.

AT PEDESTRIAN CROSSINGS. Wait for your signal. Be alert, especially for turning cars. Use the crosswalk—a Life Line for pedestrians.



FEBRUARY PROGRAM AIDS

Films, booklets and other aids for your Signs of Life program

THE films listed below were selected from the *National Directory of Safety Films* (1956 Edition), which may be purchased from the National Safety Council (Price: $1.00). For local film sources write to your state and local safety councils, state safety departments, the film libraries (if any) at your state colleges and universities and the film department of your state library.

STOP AND GO ON A BIKE (16mm sound motion) col. 13½ min. 1955. In this attractive film designed to teach children safety, the puppets Stop and Go, the Safety Twins, teach a little boy how to ride a bicycle safely in traffic, obeying traffic signs and signals, etc. Sponsored by the J. C. Penney Co. Association Films, Inc., 347 Madison Ave., New York 17, N. Y. Cleared for TV loan.

YOU BET YOUR LIFE (16mm sound motion) b&w. 11 min. Illustrates the importance of observing highway signs and signals. Points out the importance of maintaining safe driving practices on the highway. Progressive Pictures, 6351 Thornhill Dr., Oakland 11, Calif. Cleared for TV. Purchase or rental. ROA's Films, 1696 N. Astor St., Milwaukee 2, Wis. Rental.

READ, HEED AND LIVE (16mm sound motion) b&w. 9 min. 1952. Teaches the meaning of the different shapes of traffic signs and road markers. Urges awareness of the meaning of such signs and obedience to their meanings. For both adult and high school audiences. General Pictures Productions, Inc., 1702 Keo Way, Des Moines 4, Iowa. Purchase.

Film Trailers

One-minute film trailers prepared especially for Operation Safety and the National Safety Council include the following:

SURVIVAL (16mm or 35mm sound motion) b&w. 1 min. Years ago the woodsmen left signs to warn the untrained traveler in the wilderness. Today highways carry similar "Signs of Life" to avert tragedy. (OST—1-518)

SIGN LANGUAGE (16mm or 35mm sound motion) b&w. 1 min. A reminder to everyone to obey the "Signs of Life," the traffic signs and signals which tell us how to stay alive. (OST—1-11)

STOP MEANS STOP (16mm or 35mm sound motion) b&w. 1 min. A new Operation Safety film trailer.

Publications

The following publications will provide useful material for your Signs of Life program:

Manual on Uniform Traffic Control Devices—Order from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. *Manual* together with revision is $1.00. Revisions can be purchased separately at 15 cents each.

Uniform Vehicle Code—Model legislation recommended for states by the National Committee on Uniform Traffic Laws and Ordinances. The 1956 edition (as revised and approved by the Committee) in one volume is available from the National Committee on Uniform Traffic Laws and Ordinances, 1604 K Street, N.W., Washington 6, D. C. Price: $1.00 per single copy. Reduced rates for quantity lots.

Model Traffic Ordinance—Model legislation recommended for cities by the National Committee on Uniform Traffic Laws and Ordinances (as revised and approved by the Committee, 1956). Available from the National Committee on Uniform Traffic Laws and Ordinances, 1604 K Street, N.W., Washington 6, D. C. Price: 35 cents per single copy. Reduced rates for quantity lots.

The following publications are available from the National Safety Council:

1956 Progress Report — Signs of Life Program—Single copy free.

Signs of Trails and Rails—Compares the signs and trails of the Old West with the traffic signs and highways of today. Twelve pages in full life-like color.

Know-Obey Your Signs of Life—A folder illustrating and describing the shapes and meanings of standard traffic signs, signals and markings.

Information on imprinting posters and leaflets and prices for film trailers with standard or special tailpieces may be obtained by writing to NATIONAL SAFETY COUNCIL, 425 N. Michigan Ave., Chicago.

FREE OPERATION SAFETY MATERIALS

Basic aids to help you launch a successful campaign

TO DO the Operation Safety job thoroughly, you need all the tools. News releases, radio scripts, samples of leaflets and newspaper mats—formerly distributed in the Operation Safety kit—can be obtained by checking the Operation Safety box on the Reader Service Card contained in this issue of TRAFFIC SAFETY.

Here's what you get:

▸ **Four News Releases**—designed to feature local personalities and to highlight local conditions. Written by professional journalists, these releases point up the responsibility of each citizen to cooperate in the traffic safety program.

▸ **Four Radio Scripts**—five-minute, interview-type scripts on the Signs of Life safety theme. Each spotlights an appropriate local personality and is written for easy adaptation to local traffic situations. Scripts are tailored to fit the requirements of local stations.

▸ **Newspaper Mats**—a sample of each of the featured mats on the Signs of Life theme. Designs are one-column miniatures of the featured poster designs shown on page 45.

▸ **Leaflets**—samples of the three featured leaflets illustrated on page 45. These handy, pocket-size giveaways tell a brief but hard-hitting traffic safety story in a way that captures interest. Properly distributed, they can serve as star salesmen for your Signs of Life program.

▸ **Signs Make the Way Safe and Pleasant**—A new, four-color, 8-page booklet with a fresh approach to the Signs of Life program. A baby, a truck driver, railroad engineer and others tell why Signs of Life are important to them.

OPERATION SAFETY MATERIALS

SIGNS OF TRAILS AND RAILS: (399.76) compares the signs and trails of the old west with the traffic on today's highways. Filled with illustrations of Indians, frontiersmen, and soldiers that children, especially, will love and learn from. 12 pages, 5½"x8½", in full, life-like color.

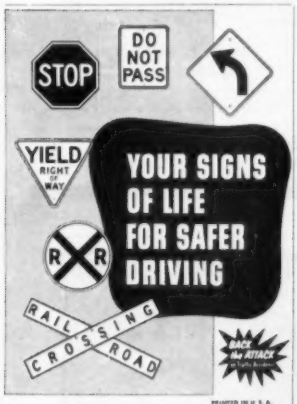
Minimum of 100. Quantity Prices—100 to 999, $.12 ea.; 1,000 to 4,999, $.095 ea.; 5,000 to 9,999, $.09 ea.; 10,000 or more, $.085 ea.

LET'S ALL BACK THE ATTACK: (397.13) The feature leaflet of the BTA Campaign. Prices: Sold in packages of 1,000 (M). 1-9M, $6.70 per M; 10-99M, $5.70 per M; 100-999M, $5.00 per M; 1,000M or more, $4.50 per M.

SIGNS MAKE THE WAY SAFE AND PLEASANT: a 4 color, eight page booklet which tells, in simple every-day words, how traffic signs are truly the signs of life on today's busy highways. Prices will be announced in the next issue of "Traffic Safety Magazine."

THE ABOVE PRICES ARE SUBJECT TO A DISCOUNT OF 10% TO COUNCIL MEMBERS

BACK THE ATTACK CAMPAIGN TAKES ON THE SIGNS OF LIFE AS ITS JANUARY THEME



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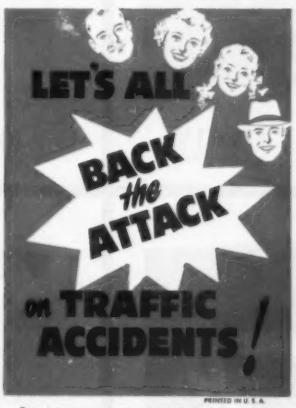

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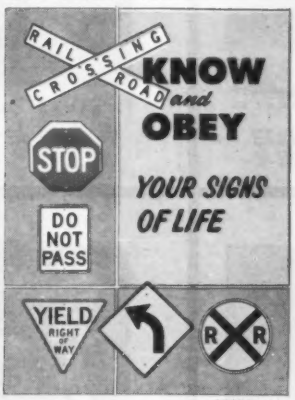
T-1184-B 17"x23"



NATIONAL SAFETY COUNCIL

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T-0467-A 8½"x11½"

NATIONAL SAFETY COUNCIL

T-0053-B 17"x23"

PRICES FOR ABOVE POSTERS

Traffic Posters—T-prefix to number	1-9	10-99	100-999	1000-4999*
A Size	$0.15	$0.092	$0.063	$0.052
B Size	.25	.18	.15	.12
C Size	.35	.27	.22	.20

YOUR CREDIT LINE can be imprinted (at time of press run) on B and C posters only. Imprinting must be requested 45 days prior to the date posters are required on all orders for imprinting.
*Please write for prices on quantities of 5,000 or more or for special rates on annual poster orders.
One column newspaper mats on these posters are available from the National Safety Council.

ALL PRICES SHOWN FOR PUBLICATIONS AND POSTERS ARE SUBJECT TO A DISCOUNT OF 10% TO NSC MEMBERS

FLEET POSTERS

POSTER PRICES

Posters illustrated on these pages are included in the automatic Motor Transportation poster services. Automatic poster sets are available on yearly subscription that provides (4) subjects per month viz. (2) "A" size (8½"x11½") and (2) "B" size (17"x23"). Automatic service is provided in the following categories:

City Truck	City Bus	Annual price 1-4 sets, $8.85 per set;
Intercity Truck	Intercity Bus	5-49 sets, $7.45 per set; 50 or more
Sales Truck	Taxicab	sets, $5.95 per set.
Truck Terminal	Bus Terminal	

Posters are available for individual selection at the following prices:

	1-9	10-99	100-999	1000-4999*
A size, any selection	.15	.092	.063	.052
B size, any selection	.30	.22	.185	.15

All prices shown are subject to a 10% discount to National Safety Council Members.
*Write for prices on quantities of 5,000 or more.

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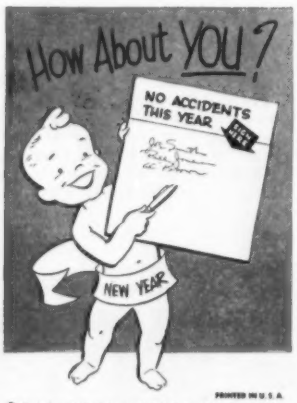
V-1226-B **17x23**



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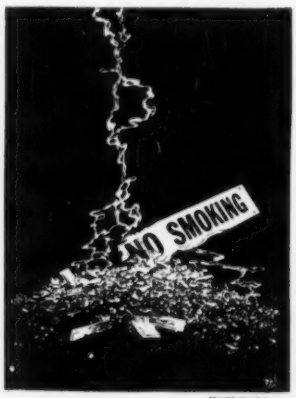

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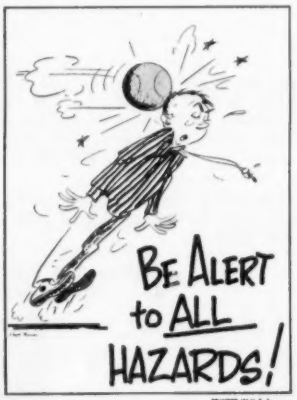

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0959-A **8½x11½**

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0909-B **17x23**

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0186-B **17x23**

NATIONAL SAFETY COUNCIL

9360-B **17x23**

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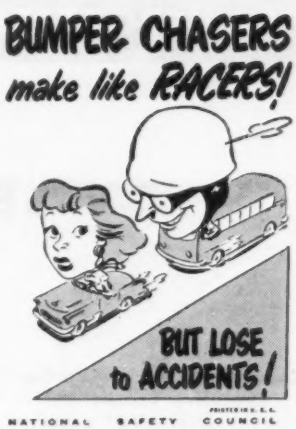
V-1227-B 17x23



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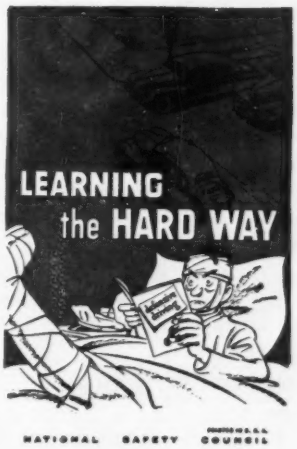

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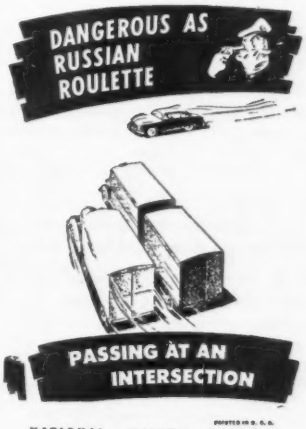
CARBON MONOXIDE A KILLER!
• Keep your cab ventilated
• Don't go to sleep in cab with engine running
• Report exhaust fumes in cab to maintenance department
NATIONAL SAFETY COUNCIL

V-9464-A 8½x11½



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V-9365-A 8½x11½

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P.I.E.'s HELPING HAND

A Swiss motorist visiting in this country ran out of gas somewhere in Utah, barely made hs way to the shoulder in front of a P.I.E. truck.

Instead of being bawled out for cutting in front of the rig, he was helped out of his jam, the truck driver refusing money for his aid.

"I travel all over the world, and am in the States eight months of every year," wrote the grateful Swiss. "Now I wave to every truck I pass, feeling they are my friends."

This is what the experts call—Public Relations.

HEALTH: THE PHYSICAL SIDE *(Continued from page 19)*

by Dr. Eugene P. Owen

tificate should never be issued to an individual who has had a history of a previous attack.

Even in the face of the most careful examination, just September 20 at Madison, Wisconsin, on a Northwest Orient airliner, the senior pilot died while at the controls of his plane, but because of the dual controls and a co-pilot, the plane was landed safely.

I am always worried that this might occur on one of our trucks in a congested traffic area.

There are many other types of heart conditions that are dangerous because they will cause a sudden loss of consciousness; but if an adequate physical examination is done, they most certainly would be recognized for their danger.

Pinpoint Vascular Ailments

Another vascular condition is high blood pressure which may precipitate a stroke. It is a well-known fact that prior to the time a stroke occurs there have been many small hemorrhages in the brain. This has been demonstrated at autopsy, when many scars have been found in the brain tissue. I am wondering if some of the accidents reported in which a driver states that he blacked-out could not have been due to one of these tiny hemorrhages that caused a momentary loss of consciousness, which, in turn, has been due to high blood pressure.

We realize that truck driving is a sedentary job and that obesity in truck drivers is perhaps higher than in other types of workers. Obesity often is accompanied by an increase in blood pressure. This frequently leads to premature disability of the driver.

The Interstate Commerce Commission regulation concerning blood pressure states merely "An individual having a blood pressure over 150 mm of mercury, systolic, shall have a urine test."

Neurological Diseases Dangerous

Another large group of diseases that are potentially dangerous are neurological conditions which may produce abnormal muscular reactions.

About two months ago a driver, four miles from his terminal, and just at the beginning of his run, crashed into a bridge abutment. Apparently there were no known causes of the accident. The driver could not explain what had happened. However, electro-encephalographic tracings showed an abnormal tracing consistent with epilepsy. Therefore, it is most likely this driver must have been having an epileptic seizure at the time of the accident.

The sclerosing diseases affecting the brain and spinal cord are almost uniformly disabling. Some of these are, Lou Gehrig's disease, multiple sclerosis and Parkinson's disease. These diseases are easily diagnosible and should be easily detected on examination. Because they may cause a lack of coordination, slowing of reflex action, momentary blindness and sudden loss of consciousness, anyone found having one of these diseases should not be issued a certificate to drive.

Another group is the metabolic conditions, such as diabetes and its disturbances. In the Johnstown, Pennsylvania accident the taking of insulin by a diabetic precipitated a loss of consciousness. But a diabetic without insulin is apt to have major problems. It is a well known fact that diabetics soon lose depth perception and will go into a coma if their diabetes is not controlled.

As Dr. Melvin Newquist, medical director of the Texas Company, in a recent article concerning drivers, said: "At first it would seem desirable for the physician to individualize each case of the diabetic driver, this however, is not advisable inasmuch as the physician, the diabetic, or the employer, does not always have control of conditions which would safeguard the diabetic driver against either drowsiness or coma, or insulin shock. Long hours, irregular meals, emergencies, or breakdowns, wherein food or insulin may not be obtained, are some of the complicating factors beyond control of the certifying physician."

Drugs Contribute to Accidents

Another group of conditions that should be discussed are those due to drugs. The sleep-resisting drugs called amphetamines are by far the most dangerous. They have a two-fold use, that of keeping one awake and to dull the appetite. Their use by truck drivers is common. These drugs often produce hallucination, visions of on-coming vehicles, animals in the road, strange objects or peculiar twists in the highway.

Accidents from the use of these drugs are assuming serious proportions.

Tranquilizing drugs! Two hundred million dollars worth were sold over the counters of the nation during the last year. They are sleep producers. The Sheriff of Imperial County, California, cited the fact that seven fatal accidents during 1956 could be traced to these two types of drugs.

Other physiological conditions are malignancies, anemias, and the leukemias. A case in point: Driver C had had most of his stomach removed because of cancer. Six months later he was recertified to drive. One night on the highway between Portland and Spokane, Washington, his rig was seen weaving from one side of the highway to the other. A driver supervisor who fortunately happened to be following him was able to stop the rig. The driver was found to be in a partial coma. The coma was due to complete debility, from the lack of proper digestive function and the assimilation of food. Of course this driver is now on another type job, but it does illustrate the fact that more thorough and detailed study should be given these men prior to the time a certificate is issued.

One with an amputated extremity should not be issued a driver's certificate. Last month at a meeting in Portland, Oregon, of an amputation clinic a re-habilitated amputee, his leg having been removed at the hip, was on his first job since his injury, and to my amazement his job was to "drive a ten-ton truck." This had been arranged for him by the rehabilitation department of the State Industrial Accident Commission.

The best example of the loss of function of an extremity or a portion thereof is the end result of poliomyelitis. Many of these persons have a real impairment and in most cases should not be allowed to drive.

Can Accidents Be Traced to Diet?

In an attempt to track down the causes of driver accidents, we at the Consolidated Freightways have compiled the results of our last 155 accidents, 27 per cent of which accidents were caused by the "less-than-five-year" driver. The larger percentage of accidents in all ages occurred in the first four hours of driving, regardless of the time of day or of traffic hazards. We are in the process now of reviewing the medical histories of these drivers, and one of the salient facts that is worth mentioning is a possible relationship to diet.

DOW AWARD WINNER

KARL SCHULZE, at left, senior safety engineer of the Standard Oil Company of California, receives Dow Award plaque from President Ned H. Dearborn of the National Safety Council at General Motors Victory Luncheon during the 45th National Safety Congress in Chicago.

Dow Award — plaque and check for $500—goes to America's top fleet safety engineer. Award honors Marcus A. Dow, pioneer fleet engineer and is sponsored by Greyhound Corporation, administered by National Safety Council.

I am sure that this type of careful scrutiny of accidents by the Medical Department has been a primary factor in affecting a savings of .07 cents per mile at Consolidated Freightways.

Three Steps Necessary

What positive approach should you take to see that your drivers are in the best of physical condition at all times and that the physical factors affecting safe driving are safeguarded?

First: Some medical program should be started by your company. Many companies are large enough to have full-time medical directors, heading a medical section. Through this department pre-employment physical examinations should be evaluated to determine whether the drivers are meeting adequate standards for safe driving. Re-examination records should be kept and evaluated over the years, as we now know that many drivers are getting into the upper-age level in which degenerative processes may rapidly develop. These re-examinations should be thoroughly scanned for disease trends and corrective measures instituted.

Again quoting Ernest Cox, "No one would inspect a vehicle for the sole purpose of determining whether or not it was road-worthy and upon the first unfavorable finding, junk the entire rig. Rather, such an inspection is expected to detect unusual wear, defects, and cracks in their early stages, so that corrective measures may be taken."

Second: On every accident board there should be a well-trained physician, and a thorough study should be made of the driver who has had the accident, to determine the possibility of human failure as a possible cause.

The Interstate Commerce Commission requires that a driver shall be examined once every 36 months, but many conditions may develop the day following an examination.

Third: All drivers should be re-examined after any illness requiring ten days away from duty, or following any major accident. The results of this examination should be kept in his medical file (not the personnel file) by your medical section, and from these files adequate statistical information can be developed of the relationship of disease to accidents.

More Medical Information Needed

The Industrial Medical Association and the Industrial Council of the American Medical Association have an active committee now at work on driver requirements and it has been surprising how little information has been obtained from companies concerning the effects of disease and accidents. Their report will be released in the near future.

The I.C.C. is attempting always to enforce its driver regulations but because companies have failed to evaluate accident records in the light of human failure they have little or no basis upon which to suggest additional recommendations for driver requirements.

Until we physicians have more detailed positive regulations, in which disqualifying defects and diseases are listed, the Commission's regulations will be subject to individual interpretations, and because of these interpretations, we are very likely to have drivers on our highways with physical impairments that are apt to cause accidents.

VISION: DO WE SEE WHAT WE THINK WE SEE?

by Dr. Brittain F. Payne

(Continued from page 21)

may cause an automobile crash, head-on collision or side-swiping. Double vision indicates lack of muscular co-ordination, either from fatigue, injury or disease, and should disqualify a person from any type of driving. A test for double vision should be included in the examination.

A satisfactory test for depth perception, or the ability to locate still and moving objects in space, in daylight and partial darkness should be devised and used. It might be well to investigate road hypnosis and the effect of twilight on this faculty or vice versa. Misjudgment of distance in passing may be the direct result of poor depth perception. A test for stereoscopic vision will give some information at least.

Color Blindness Should Disqualify

Color vision is the ability to recognize colored traffic lights, in dazzling sun, fog and at night. It is reported that at least one out of every 10 males and one out of 1,000 females has some deficiency in color appreciation. A simple lantern-type test for red, yellow and green would be satisfactory for practical testing. My own experience with 25 per cent color deficiency while driving into the sun makes it almost impossible to tell when the lights turn green. A heavy fog confuses my color appreciation quite seriously. Therefore, total "color-blindness," whether congenital or acquired from tobacco and alcohol or disease, should be a disqualifying factor.

Glare Recovery—Side Vision Vital

Dark adaptation and recovery of vision from glaring headlights are important factors in safe driving. The tests are rather complicated, but give considerable information of value. Ingestion of vitamin A will help dark adaptation which tends to diminish with age and is definitely lowered by ingestion of alcohol, tobacco, and carbon monoxide fumes.

Peripheral vision or side vision is a necessary faculty in safe driving. Such diseases as pigmentation or separation of the retina, increased pressure within the eyeball, scarring and hemorrhages will cause serious loss of side vision.

If the driver is progressing through a narrow tunnel of vision, it is impossible to see many objects overtaking him or approaching from either side. A crash may result because the affected driver may not see the object in time.

The normal field of vision for the two eyes in the horizontal plane is at least 180 degrees and less than 140 degrees should disqualify for driving. When the eyes are tested separately the horizontal extent of the field should not be less than 70 degrees and if any meridian shows contraction to 20 degrees the applicant should be disqualified. He should be limited to daylight driving because he is actually driving through a narrow tunnel of sight.

Dr. Harold Brandaleone, medical director of the Third Avenue Transit System and the United Parcel Service of New York City, uses a profile classification system similar to that of the United States Air Force. Class 1 represents the highest and class 4 the lowest division in this evaluation. The use of narcotics, sedatives, anti-histamines, dexedrine and other stimulants in excess as well as chronic use of alcohol will place the applicant in the fourth group. The visual standards are similar to the above discussion.

Needed Visual Standards

The presentation of the recommendations of the Committee on Visual Standards evolved at the meeting on Medical Aspects of Motor Vehicle Accident Prevention at the New York University-Bellevue Medical Center 23 May, 1956 are worthwhile. Although minimal in many aspects, adoption of these recommendations may save many lives on our highways. They are as follows:

"We recommend that the usual three main categories of public transportation, interstate commerce, and private car operators be changed so as to combine public transportation and interstate commerce personnel into one group.

I. **The following are our recommendations for the minimal visual standards for the first group (public transportation and commercial operators):**

- ***A.*** **A correctable visual acuity to 20/30 Snellen in each eye. If corrective glasses are required for obtaining visual acuity of 20/30, unbreakable glasses or an extra pair of glasses should be mandatory.**
- ***B.*** **Form fields of 70 degrees in the horizontal meridian with each eye and 140 degrees in the horizontal meridian with both eyes.**
- ***C.*** **No requirements for color vision indicated. However, it is recommended that the shape, size, position, and color of traffic lights be standardized.**
- ***D.*** **No requirement for stereopsis (depth preception) indicated or recommended.**
- ***E.*** **No test for light sense recommended but the presence of night blindness should be excluded by direct question.**
- ***F.*** **Mandatory yearly examinations under the supervision of a qualified eye examiner.**

II. **The following are recommended as the minimal requirements for private car operators:**

- ***A.*** **A correctable visual acuity to 20/40 Snellen in one (the better) eye.**
- ***B.*** **For field of 70 degrees in the horizontal meridian in each eye or 140 degrees in the horizontal meridian in one eye.**
- ***C.*** **Re-examination of eyes every three years.**

III. **The following recommendations are considered pertinent to the broad role of vision in safe motor vehicle operation:**

A. There is need for greater recognition and correction of present inequalities in related state laws.

B. Further consideration must be given to such mechanical factors as the following:

1. Vehicle design (windshield bars, wipers, blind spots, etc.)
2. Lowered visibility in use of tinted windshield and/or use of tinted glasses for night driving.
3. Reflections inside the car (chrome, etc.)
4. Rear window and mirrors.
5. Visibility of moving objects on road or roadside.

C. Consideration should be given to the advisability of requiring parties involved in a serious accident to undergo more extensive medical (including visual) and mental examinations under duly qualified examiners to evaluate their fitness to continue to drive.

D. No specific recommendations are made at the present time in regard to color vision, stereopsis, and light-sense because of the lack of uniformly acceptable tests.

E. Consideration should be given to further research concerning the relation between the causes of accidents and depth perception (stereoscopic vision), muscle balance, and particularly visual and mental reaction time.

F. It is recommended that every commissioner of motor vehicles have available qualified eye consultants for consideration of all visual problems, including limited license and hardship cases.

G. It is recommended that the licenses of all individuals receiving aid for the blind be revoked.

Great emphasis must be placed on further evaluation of total environmental factors in accidents and on scientific determination of the perception and proficiency of drivers."

Far too many automobile drivers with defective vision are endangering the lives of others and themselves on the roads and highways today.

Persons with one eye or defective vision in one eye should be given limited driving licences.

Drivers with poor color appreciation should be examined carefully and if they are unable to distinguish red and green lights their licenses should be limited to daylight driving only.

If the fields of vision are diminished to less than 20 degrees in any meridian, the applicant should be limited to daylight driving.

Applicants with poor depth perception, the inability to locate objects in space, should receive special attention and perhaps disqualified for night driving. END

EMOTIONS: PERSONALITY'S MULTIPLE FACETS

by Dr. Eugene S. Turrell

(Continued from page 23)

what components of social adaptation and of value systems will best discriminate between the accident susceptible and the non-accident driver.

Our findings with the Allport-Vernon scale of values need to be validated on larger samples. It is hoped that a commercial firm or firms might use this test and compare the results with accident records of their drivers. In addition, both Tillman's and Dunbar's studies give some clues concerning features of the social adaptation which might be utilized and compared with accident records of the drivers.

A history of conflict with authority and delinquent or psychopathic behavior, especially if these behavior patterns have changed, may be good indications of accident susceptibility. It should be emphasized, however, that the use of such indicators should be approached as research studies, since the validity of these observations requires further confirmation.

In the practical problem of selection of commercial drivers, there is an additional complicating factor—that of motivation for this particular type of employment. This factor of motivation should also be evaluated to see whether this contributes to or subtracts from the personality features associated with accident susceptibility.

At this point, I should like to digress to discuss the relationship of psychoses and neuroses to accident susceptibility. I have never seen any valid studies which would indicate that neurotic or psychotic patients are more prone to accident than other groups. In addition, my own clinical experience would indicate that patients with certain types of illnesses who come to the attention of psychiatrists may have less than average susceptibility to accidents. Therefore, I would caution against considering a person accident prone because of manifest symptomatology.

The level of intelligence is another factor frequently implicated in accident behavior. Though I do not have specific references, there are indications that, in routine jobs of driving, highly intelligent individuals have more accidents. It has been implied that the discrepancy between intellectual capabilities and the demands of the job leads to boredom which in turn leads to accidents. However, it is equally valid to assume that such accidents are the result of frustrated ambitions which could reasonably have been achieved had such highly intelligent individuals been able to properly channelize their aggressive drives.

It seems reasonable to assume that, at the other end of the scale, low intelligence would interfere with ability to

Turn Page

THE SAFETY LIBRARY

By Ruth Parks, Librarian, NSC

Books, pamphlets, and articles of interest to safety men.

Accidents

A Study of One-Car Accidents. Richard W. Bletzaker, Robert F. Baker, Thomas G. Brittenham. 38p. and Appendix, 1957. Engineering Equipment Station, College of Engineering, Ohio State University, Columbus 10, Ohio.

Color

Safety on the Highways a Problem of Vision, Visibility and Color. Faber Birren. *Traffic Engineering*, p.568-571, September, 1957.

Congestion

Cost of Excessive Congestion in Philadelphia. Howard S. Lapin. *Traffic Engineering*, p.557-558, September, 1957.

(Urban freeway systems)

Drivers and Driving

Human Variables in Highway Safety. Ross A. McFarland. *International Road Safety and Traffic Review*, p.15-20, Summer, 1957.

Objective Measurement of Driving Skill. W. J. Shaw. *International Road Safety and Traffic Review*, p.21-30, Summer, 1957.

(Progress in research on the total driving skills at the British Medical Research Unit of Applied Psychology.)

Parents Can Mould the Teen-Age Driver George A. White. *Safety*, p.11-12, September, 1957.

(Parents should set driving example.)

Enforcement

Double Use of Enforcement Bulletin. *Traffic Digest & Review*, p.5-6, September, 1957.

EMOTIONS: PERSONALITY'S MULTIPLE FACETS

Continued From Page 53

master the complexities of driving and would therefore be associated with increased frequency of accidents. This is undoubtedly a factor at some level of intellectual deficiency but further data is needed in order to determine the level at which this becomes a factor.

Personality Problems Not Static

To this point, our discussion may have led to the impression that personality problems are static and are amenable to single analysis from which we can make predictions concerning accident behavior. This may be the case in a small group of frequent repeaters, but it is far from the fact in the majority of individuals who have accidents. As in the case previously cited, of the young man who had five accidents with his father's car, he ceased to have accidents when his father got well and he, the subject of our study, was no longer required to carry on all of his father's duties.

Probably most accidents are suffered by individuals during periods of stress with accident susceptibility subsiding as the stress is alleviated. However, basic value systems and behavioral mechanisms for handling such conflicts may be subject to evaluation: thus indicating the potentiality of accident if the individual does meet particular stressful situations.

Now, assume for a moment that we could be completely successful in the selection of drivers who would not have accidents. Dunbar reports on one commercial firm which transferred susceptible accident drivers to other jobs within the company, only to find that they continued their accident behavior by having other types of industrial accidents.

If all industries could select accident-free personnel, men or resources would not be adequate from which to choose. Therefore, in addition to evaluation procedures, we will need to develop preventive measures in order to help certain individuals overcome their accident susceptibility.

We need further research in education, counseling, incentives, and psychotherapy as useful measures in the field of accident prevention. It might also be of value to explore the possibility of substitute aggressions.

Primitive Defense No Longer Needed

The noted physiologist, Dr. Walter B. Cannon, pointed out that the physiological mechanisms of our aggressive behavior stem from the time that man lived a more primitive existence and needed such defenses. Though modern society does not require such primitive aggressions, the mechanisms still exist and still react.

Dr. Cannon proposed a program of substitutes, such as competitive sports, as a means of discharge of these aggressions. I recognize that many industries have programs of sports and recreation but do not know whether such programs involve a large percentage of employees, nor whether the effects of such programs upon accident rates have been evaluated.

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U. S. Authorities Develop New Code Against Excessive Exhaust Smoking. *Motor Truck & Coach*, p.29-30, September, 1957.

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Police Helicopter Operations. C. E. Wolfrum. *Traffic Digest and Review*, p.1-3, September, 1957.

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The Board of Wayne County Road Commissioners—Pioneers in Road Building and Traffic Engineering. J. L. Wehmeyer. *Traffic Engineering*, p.561-563+, September, 1957.

(Development of super-highway in and around Detroit, Cooperation of city, county and towns in road planning and traffic control.)

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(Wisconsin's sufficiency-rating system.)

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Baton Rouge Reports 15% Night Accident Reduction Since Relighting. James A. Stelly. *Street and Highway Lighting*, p.21+, September, 1957.

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Share-The-Phase Pedestrian Control. Martin A. Bruening. *Traffic Digest and Review*, p.12-16, September, 1957.

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Distribution of the Gaps Between Successive Vehicles. Ing. W. Leutzbach. *International Road Safety and Review*, p.31-36, Summer, 1957.

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(Closed circuit TV system could spot breakdown and permit assistance to be dispatched immediately.)

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Railway Age, Simmon-Boardman Publishing Corp., Orange, Conn.

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Kirk Fox, editor, *Successful Farming*, Meredith Publishing Company, Des Moines, Ia.

Mrs. Gertrude H. Frese, assistant to vice president & general manager, New York Telephone Company, Brooklyn, N. Y.

Gerard O. Griffin, director of safety, Dravo Corporation, Pittsburgh, Pa.

S. W. Grimes, managing director, Pacific Coast Association of Pulp and Paper Manufacturers, Portland, Ore.

Paul E. Gurske, director, Bureau of Labor Standards, U. S. Department of Labor, Washington, D. C.

R. P. Hamilton, superintendent of safety, St. Louis-San Francisco Railway Company, St. Louis, Mo.

J. P. Hightower, director of transportation and safety, The Greyhound Corporation, Chicago, Illinois.

Stanley C. Hope, president, Esso Standard Oil Company, New York, N. Y.

George A. Jacoby, director of personnel relations, General Motors Corporation, Detroit, Mich.

Newell B. Johnson, general manager, American Mutual Insurance Alliance, Chicago, Ill.

Walter K. Koch, president, Mountain States Telephone and Telegraph Company, Denver, Colo.

Dalibor W. Kralovec, assistant director in charge of safety, The Board of Education, Philadelphia, Pa.

Franklin M. Kreml, director, Transportation Center, Northwestern University, Evanston, Ill.

Edmond H. Leavey, president, International Telephone and Telegraph Corp., New York, N. Y.

E. W. Lehmann, special representative of the vice president, Farm Implement Division, International Harvester Company, Chicago, Ill.

William H. Lowe, treasurer, Inland Steel Co., Chicago, Ill.

E. C. McFadden, vice president, Texas Employers' Insurance Association, Dallas, Texas.

Harold G. Mangelsdorf, Esso Standard Oil Company (N. J.), New York, N. Y.

Miss Marion E. Martin, commissioner of labor and industry, State of Maine, Augusta, Me.

I. W. Millard, chairman of the board, Industrial Gloves Company, Danville, Ill.

Edward C. Myers, assistant vice president, United States Steel Corporation, Pittsburgh, Pa.

Guy L. Noble, managing director, National Committee on Boys and Girls Club Work, Chicago, Ill.

Henry E. North, vice president, Metropolitan Life Insurance Company, San Francisco, Calif.

Clifton W. Phalen, executive vice president, American Telephone and Telegraph Company, New York, N. Y.

Mrs. Ivy Baker Priest, Treasurer of the United States, Treasury Department, Washington, D. C.

A. V. Rohweder, superintendent of safety & welfare, Duluth, Missabe & Iron Range Railway Company, Duluth, Minn.

Robert T. Ross, manager, employee service, Industrial Relations, Ford Motor Company, Dearborn, Mich.

Mrs. Raymond Sayre, Ackworth, Iowa.

A. J. Schwantes, head of department of agricultural engineering, University of Minnesota, St. Paul, Minn.

Harry See, national legislative representative, Brotherhood of Railroad Trainmen, Washington, D. C.

Louis B. Seltzer, editor, *The Cleveland Press*, Cleveland, Ohio.

P. L. Siemiller, general vice president, International Association of Machinists, Chicago, Ill.

Reuben D. Siverson, manager, Department of Manufacture and Industrial Development, Chamber of Commerce of the United States, Washington, D. C.

J. L. S. Snead, Jr., president, Consolidated Freightways, Inc., Menlo Park, Calif.

Leslie J. Sorenson, city traffic engineer, City of Chicago, Chicago, Ill.

Herman J. Spoerer, vice president, Industrial Relations, The Youngstown Sheet and Tube Company, Youngstown, Ohio.

A. E. Spottke, vice president, Allstate Insurance Company, Skokie, Ill.

G. C. Stewart, executive vice president, National Safety Council, Chicago, Ill.

Walter A. Stewart, trustee and former president, American Optical Company, Southbridge, Mass.

Arthur E. Stoddard, president, Union Pacific Railroad Co., Omaha, Neb.

Col. W. L. Tubbs, assistant for ground safety, DCS/Personnel, Hq., U. S. Air Force, Washington, D. C.

Lloyd Utter, director, industrial health & safety division, United Automobile Workers, Detroit, Mich.

Donald G. Vaughan, secretary, Aetna Casualty & Surety Co., Hartford, Conn.

Mrs. George Welles, Jr., Duluth, Minn.

Dr. George M. Wheatley, third vice president, Metropolitan Life Insurance Company, New York, N. Y.

R. S. Wilson, executive vice president, Goodyear Tire and Rubber Company, Akron, Ohio

W. O. Wilson, manager of safety, Standard Oil Company (Indiana), Chicago, Ill.

Dr. William P. Yant, director of research, Mine Safety Appliances Company, Pittsburgh, Pa.

TRUSTEES NATIONAL SAFETY COUNCIL 1957-58

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Calvin Fentress, Jr., chairman, Allstate Insurance Co., Skokie, Ill.

Francis J. Gavin, chairman, board of directors, Great Northern Railway Co., St. Paul, Minn.

E. Roland Harriman, Brown Brothers Harriman & Co., New York, N. Y.

Clifford F. Hood, president, United States Steel Corp., Pittsburgh, Pa.

Joseph L. Lanier, president, West Point Manufacturing Co., West Point, Ga.

George E. Leighty, chairman, board of directors, Railway Labor Executives' Assn., Washington, D. C.

Ray D. Murphy, chairman, The Equitable

ARE COURTS CODDLING YOUNG DRIVERS?

From Page 29

their treatment of not only the youth but the adult as well. If we continue our long range educational program of safety and our officers make fair arrests—give fair and impartial testimony in court and the courts mete out fair and effective penalties we are going to cut the traffic toll 50 per cent in the next 20 years.

Some of the penalties I have meted out to juveniles have been as follows:

1. Suspension of license.
2. Jail sentences.
3. No pleasure driving for a definite period (enforced by filing of affidavit with clerk).
4. A suspended jail sentence on condition the defendant attend church at least once a month for one or two years (enforced by filing affidavit with clerk of court).
5. A suspended jail sentence of one or two days on condition the defendant is not again convicted of a speed of more than 10 miles over the speed limit (this judgment is meted out on the second offense). I have given more than 50,000 of these in the past 10 years. I have not had over 500 repeaters and only 10 who have been second repeaters. This demonstrates how effective this penalty has been.

Briefly I would say the cure for juvenile delinquency is to teach the child to respect the rights of others from the cradle until he is old enough to drive. If he is so taught, he will naturally put this good trait of character into use in his driving.

Morris Rosenthal
Judge, Municipal Court, St. Louis, Mo.

In St. Louis, the juvenile court handles offenders up through the age of 16. There is no special court for youths of 17 and over, but these offenders are given special handling.

Youthful offenders—age 17 to 25—who are repeat violators must attend a traffic school which is conducted by the St. Louis Safety Council and the City of St. Louis. The school meets in a local high school.

This traffic school has greatly alleviated the teen-age traffic problem in St. Louis. Ninety per cent of those attending the traffic school are between the ages of 17 and 25. Only 25 per cent of those attending the traffic school have returned to court in subsequent cases. The school was founded in July, 1954, and has graduated to date 1,700.

William H. Gilmartin, Judge,
Corporation Court, Fort Worth, Texas

Juveniles in Texas subject to the traffic laws are boys 14 to 17, and girls 14 to 18.

It is my opinion that most of the juveniles, especially the boys, and I have asked hundreds of them about the matter, want to be treated the same as other persons who receive tickets. They don't ask for any special consideration because of their age. They do not want to be treated as irresponsible children. They feel they know the rules, and are willing to pay the penalties for their infractions.

When the state considers the juveniles old enough to have driver's licenses, I see no reason why they should not be subjected to the same regulations as adult violators in the same forum.

I feel the big difference between juvenile and adult drivers is that juveniles do not have the considered judgment of adults, and juveniles are more inclined to take risks; but they know generally when they are violating the rules just as adults do.

Life Assurance Society of the United States, New York, N. Y.

T. S. Petersen, president, Standard Oil Co. of California, San Francisco, Calif.

Gwilym A. Price, president and chairman, Westinghouse Electric Corp., Pittsburgh, Pa.

Walter P. Reuther, vice president, American Federation of Labor-Congress of Industrial Organizations, Detroit, Mich.

W. S. S. Rodgers, former chairman, The Texas Co., New York, N. Y.

Edward L. Shea, chairman, Ethyl Corp., New York, N. Y.

Herbert E. Smith, former chairman, United States Rubber Co., New York, N. Y.

John Stilwell, Yonkers, N. Y.

Arthur E. Stoddard, president, Union Pacific Railroad Co., Omaha, Neb.

Dr. John F. Thompson, chairman, The International Nickel Co., Inc., New York, N. Y.

Kenneth C. Towe, chairman, American Cyanamid Co., New York, N. Y.

Juan T. Trippe, president, Pan-American World Airways System, New York, N. Y.

C. E. Wilson, former secretary of defense, Washington, D. C.

Robert W. Woodruff, chairman, finance committee, The Coca-Cola Co., Atlanta, Ga.

Highway Contractors Push Engineering Careers

Highway contractors in Illinois are aiding materially in interesting Illinois high school students to consider highway engineering as a career. Two $4,000 scholarships are provided each year for Illinois high school graduates who want to study in this field in the Department of Civil Engineering at the University of Illinois. In addition, a $1,200 award is available to a graduating senior in highway engineering at the University of Illinois for travel by car during the summer following graduation.

The two $4,000 scholarships, known as Associated General Contractors of Illinois scholarships, were first awarded in 1955. One is financed by the Association and the other one by two contractor members of the Association, S. J. Groves and Sons Company, Springfield, Ill., and McDougal Hartmann Company, Peoria, Ill.

Here's How Off Press in January

The fourth edition of *Here's How*, case histories and examples of safety education programs designed to aid in promoting traffic control and accident prevention, will be off press in January.

Richard O. Bennett, National Association of Automotive Mutual Casualty Companies, 20 N. Wacker Drive, Chicago 6, Ill., is source for copies.

Arthur Williams Memorial Award to John J. Hall

THE American Museum of Safety has presented its annual award for distinguished safety achievement by an individual to John J. Hall, director of the Esso Safety Foundation.

Known as the "father of motor vehicle inspection" and one of the founders of the American Association of Motor Vehicle Administrators, Mr. Hall will receive the Arthur Williams Memorial Award. It was established under the will of Mr. Williams, industrialist who was a founder and the first president of both the American Museum of Safety and the Greater New York Safety Council.

Mr. Hall has been active in the field of traffic safety for more than 30 years and pioneered many street and highway programs that are in nationwide use today. He introduced the "Save a Life" campaign in 1927, calling for statewide periodic inspection of motor vehicles.

While associated with the National Bureau of Casualty and Surety Underwriters, he promoted the country's first statewide driver education program, using the first high-school driver education textbook, "Man and the Motor Car."

In 1931, he aided the U. S. Bureau of Public Roads in establishing the American Association of Motor Vehicle Administrators and was elected its only honorary member for his services.

Mr. Hall has headed the Esso Safety Foundation since it was organized in 1954. It cooperates in high-school driver education programs; and provides financial support for courses attended by high-school and college teachers of driver education, and for traffic-safety seminars for judges, prosecutors and police chiefs.

These courses are conducted by organizations and educational institutions like the American Bar Association, the International Association of Chiefs of Police, the Center for Safety Education of New York University, and the Traffic Institute of Northwestern University.

Graduate fellowships in traffic engineering at Yale's Bureau of Highway Traffic and in driver education at N. Y. U. also are donated by the Esso Safety Foundation. In cooperation with the American Association of Motor Vehicle Administrators, it has provided a $40,000 grant for a current two-year study at the University of North Carolina which is attempting to develop a uniform "point system" method of rating and controlling traffic violators. Establishment of uniform traffic safety codes throughout the country is one of the major goals of highway safety officials.

Mr. Hall is also manager of Esso Standard Oil Company's newly-organized highway traffic department, which was created because of the huge expansion in Federal programs of highway development. He received the Williams Memorial Award during ceremonies October 16 at the Hotel Roosevelt.

CV Officers

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COUNSELORS

W. M. Aicher, employee relations, U. S. Brewers Foundation, Inc., New York, N. Y.

N. E. Aikin, director of industrial relations, Commercial Motor Freight, Inc., Columbus, Ohio.

C. D. Calkins, director of safety, Pacific Motor Trucking Co., San Francisco, Calif.

E. G. Cox, chief, section of motor carrier safety, Interstate Commerce Commission, Washington, D. C.

E. J. Emond, director, automotive safety, Armour and Co., Chicago, Ill.

W. T. Gowens, director, safety & personnel, Pilot Freight Carriers, Inc., Winston-Salem, N. C.

GREATEST NUMBER OF DEATHS FROM A SINGLE MOTOR VEHICLE ACCIDENT

by type of vehicle, time and place of occurrence.

(As reported to the National Safety Council)

Collision With:	Number of Deaths	When Accident Occurred	Where Accident Occurred
Passenger Car—Passenger Car	13	4/21/40	Slayton, Minn.
Passenger Car—Railroad Train	12	12/16/56	Phoenix, Ariz.
Passenger Car—Three Trucks	11	9/20/53	San Bernardino Co., Calif.
Passenger Car—Truck	10	3/20/53	Washington Twsp., N. J.
Passenger Car—Bus	8	4/11/51	Near Flagstaff, Ariz.
Passenger Car—Fixed Object	7	8/30/49	Near Sanford, Fla.
Passenger Car—Fixed Object	7	1/28/52	Kingman County, Ariz.
Passenger Car—Road Equipment	6	5/29/53	China, Maine
Passenger Car—Motorcycle	5	10/19/53	Near Roswell, N. Mex.
Passenger Car—Pedestrian	4	3/43	Chicago, Ill.
Passenger Car—Pedestrian	4	10/31/56	Door County, Wis.
Passenger Car—Motor Scooter	2	8/14/53	Scottsbluff Co., Neb.
Passenger Car—Motor Scooter	2	6/13/57	Oklahoma
Passenger Car—Bicycle	2	5/25/53	Near Espanola, N. Mex.
Passenger Car—Bicycle	2	6/28/55	Bedford Twsp., Mich.
Passenger Car—Streetcar	2	8/4/53	Pittsburgh, Pa.
Truck—Streetcar	34	5/25/50	Chicago, Ill.
Truck—Railroad Train	29	3/14/40	Near Alamo City, Texas
Truck—Truck	21	6/6/57	Near Fayetteville, N. C.
Truck—Passenger Car—Bus	14	8/18/51	Alpena County, Mich.
Truck—Bus	11	10/2/42	Near Lumberton, N. C.
Truck—Pedestrian	7	5/27/55	San Francisco, Calif.
Truck—Fixed Object	4	8/9/50	Medway, Maine
*Truck—Motorcycle	2	10/2/53	Thomasville, Ala.
Bus—Bus	28	8/4/52	Near Waco, Texas
Bus—Railroad Train	24	12/1/38	Salt Lake Co., Utah
Bus—Fixed Object	23	8/3/31	Near Georgetown, S. C.
Bus—Ambulance	3	3/16/53	Montana
Bus—Motorcycle	2	8/6/53	Allegheny Co., Pa.
Motorcycle—Railroad Train	2	6/10/41	Scarboro, Maine
Noncollision: (Ran off roadway, overturned, etc.)			
Bus	20	3/44	Passaic, N. J.
Truck	19	6/5/43	Near Nashville, Tenn.
Passenger Car	11	7/31/54	Letcher Co., Ky.
Motorcycle	2	8/7/49	Near Dayville, Ore.

*Duplicates eliminated, latest shown

H. K. Halbrooks, director, accident prevention div., National Automobile Transporters Assn., Detroit, Mich.

A. L. Hauck, director, safety & public relations, Transportation Underwriters, Inc., Indianapolis, Ind.

J. P. Hightower, director of transportation and safety, The Greyhound Corp., Chicago, Ill.

H. R. Hosea, director of research, National Assn. of Motor Bus Operators, Washington, D. C.

M. R. Jensen, vice president, Consolidated Freightways, Inc., Indianapolis, Ind.

E. B. Kellogg, secretary, Milk Industry Foundation, Washington, D. C.

W. G. Macintosh, manager, engineering dept., Hartford Accident and Indemnity Co., New York, N. Y.

A. E. Neyhart, administrative head, The Pennsylvania State University, University Park, Pa.

R. N. Papich, safety consultant, American Gas Assn., New York, N. Y.

F. J. Wirken, director, safety and personnel, Interstate Bakeries Corp., Kansas City, Mo.

Havenner Heads Traffic Engineers

Joseph E. Havenner, director of engineering and technical services for the Automobile Club of Southern California, Los Angeles, Calif., was elected president of the Institute of Traffic Engineers at the 27th Annual Meeting of the organization held in Detroit, Mich.

Havenner, who has served in several important positions in the Institute, succeeds J. Carl McMonagle, assistant director, Highway Traffic Safety Center, Michigan State University, East Lansing, Mich.

Two vice presidents were elected. They are Matthew C. Sielski, director of safety and traffic engineering, Chicago Motor Club and Edward G. Wetzel, assistant chief of the planning division, Port of New York Authority. Both Wetzel and Sielski have been active in Institute affairs for several years. During the coming year, Sielski will have general supervision of the administrative activities of the Institute while Wetzel will supervise the activities of the seven technical departments of the organization.

Alger F. Malo, director of the Department of Streets and Traffic, Detroit, was elected secretary-treasurer. Malo was general chairman of this year's convention, is a past president of the Michigan Section of the Institute, and served as a director of the Institute for two years.

Fred W. Hurd, Director of the Yale Bureau of Highway Traffic was re-elected to the Board of Direction along with two new members, Michael J. Gittens, traffic engineer of Pittsburgh, and William R. Marston, deputy city traffic engineer of Chicago. They will serve along with Robert A. Burch, traffic engineer, North Carolina State Highway Department, Herbert C. Higgins, bridge engineer, Washington Department of Highways, and George W. Howie, director of public utilities and traffic, Cincinnati, Ohio.

Parents ~~WANT~~ *demand* a WELL EQUIPPED Safety Patrol

That's where we can help . . . Graubard's Equipment is nationally known as the school safety patrol equipment "That Promotes Safety." It does this by fulfilling both of the conditions essential to a really effective Safety Patrol. First, it gives each patrol member a definite sense of responsibility and a pride in doing his job well. Second, being "Standard Equipment" it is recognized by school children and motorists alike, assuring their respect and cooperation.

Take the time to check your safety patrol today! Look over the many "standard" Safety Patrol Equipment items listed below and be sure your patrol members are properly uniformed and ready to perform the vital task of protecting your children, in all kinds of weather! . . .

Belts
Caps, Helmets
Badges
Arm Brassards
Emblems
Raincoats
Capes
Caution Flags
Merit Awards
Boots & Overshoes
Corporal
Digbys
Trafficones
School Warning Signs
Traffic Control Signs

GRAUBARD'S

Note New Address
236 High Street Newark 2, N. J.
"America's Largest Safety Patrol Outfitters"

Circle Item No. 5—Reader Service Card

NEW... SAFETY EQUIPMENT

Publication of product announcements in this section should not be construed as endorsement or approval by the National Safety Council.

6-Inch Snow Wiper Blade

A snow wiper blade that can be easily removed or placed on any wiper arm is in national distribution to automotive equipment dealers. The blade will efficiently remove snow from windshields. Longer blades, with low pressure wiper arms, do not have enough surface pressure to keep snow off of windshields. Also, longer blades have a tendency to hop off glass in a high wind. The new blade also keeps windshields clean of road scum and dirty road water.

The manufacturer has also announced that a new adjustable replacement arm is being manufactured that applies a pressure of one ounce per inch to any blade up to 16 inches in length. Another new development is a pressure indicator. This indicator quickly discloses arm pressure deficiencies and permits accurate adjustment of the new antiwind-left arm to keep the blade snug to the glass under all storm conditions.

The Anderson Company, 1075 Grant Street, Gary, Ind. (Item 41)

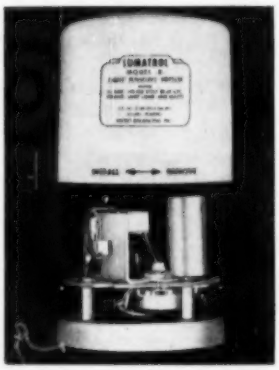
Reflectorized Emergency Traffic Barricade

The "Rode-Blok" is a portable, temporary traffic or roadway barricade designed and intended for use during active police participation in an incident. The barricade is not to be considered as a permanent barrier.

When opened and placed in use the "Rode-Blok" extends 9 feet from end to end of the cross-member. Any desired warning legend and identifying symbol may be legibly painted on the cross-member, in bold, clear lettering six inches high. The word "Stop" may be swiftly changed to "Caution" by removing or inserting a plaque that is provided to fit into a frame mounted on the face of the first section of the cross-member. A large arrow is printed on the opposite side of the "Caution" plaque. This arrow may be used to detour traffic in either direction. Consequently, the plaque permits the selection of four different warning signals. As an extra feature, two railway fuses (spiked base), may be quickly installed in metal reinforced holes at opposite ends of the cross-member. This elevates the flares more than 36 inches above the ground.

The compact package may be carried in the trunk of a police cruiser.

The "Rode-Blok" Corporation, 613 S. Rampart St., New Orleans 12, La. (Item 42)



Highway Lighting Control

A tubeless street and highway lighting control said to offer an unusual degree of reliability is called Model R. The circuit eliminates the use of vacuum tubes. Light is sensed by a hermetically sealed replaceable cell instead of a photo tube, and switching is accomplished with a long life, plug-in hermetically sealed electrostatic relay. Tests in field installations show that the relay will provide a life expectancy of up to 10 years. Expulsion type lighting arrestors are available on this model. The model is housed in a specially processed, weather-proof cover with omni-directional light sensing characteristics. This, together with plug-in mounting, is said to make the model simple and quick to mount on either luminaires, poles or cross arms.

Micro Balancing, Inc., Garden City Park, N. Y. (Item 43)

Hydraulic Rescue Kit

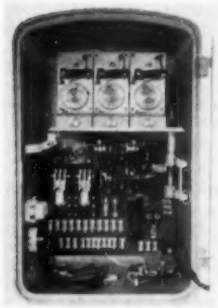
Hydraulic tools contained in rescue kits are now available to aid in the removal of persons pinned by accident wreckage. Fire chiefs, sheriffs, police officials and industrial safety men will find these very helpful when releasing accident victims. A kit consists of a hand-operated pump, flexible hose and a ram, plus an assortment of attachments that enable the equipment to push, pull, lift, spread, clamp or press in order to free a victim pinned under wreckage. The rams selected for the rescue kits vary in size from four to 20 tons in power output. Larger rams for special heavy duty work range up to 100-ton capacities.

For More Information—Circle Item on the Reader Service Postcard

No outside source of power is needed. Forty-two pounds of pressure applied to the hand pump produces a force of four tons.

The pump and ram are connected by a flexible hose which permits remote operation, an important feature in hazardous areas or cramped quarters. This hydraulic rescue equipment eliminates the need for prying and hacking and the danger of fire from torch cutting equipment.

Blackhawk Mfg. Co., Milwaukee 46, Wis. (Item 44)



Traffic Signal Controller

A multi-dial controller for traffic signals features a motor driven camshaft which is said to be an exclusive design and results in vibration-free operation.

Model M-30 is designed for one, two, three or more dials as required, each with time cycles from 30 to 120 seconds. To take care of the complex requirements of modern traffic control, there are 18, and more if needed, signal circuits available in the M-30. Simple maintenance is a prime consideration in the design of the model. Timer assemblies swing out of the cabinet so that the entire wiring panel is visible and accessible.

Other features include automatic control of flashing, shutdown, remote control of emergency all-red, as well as manual operation as needed.

The Marbelite Co., Inc., 175 N. 10th Street, Brooklyn, N. Y. (Item 45)

Flasher Safety Light

A heavy duty light, said to provide 60 to 90 days of continuous operation without servicing is called Model HD-2. The light is powered by a heavy duty 6 volt, 8-cell dry battery that has more than twice the service life capacity of 4-cell batteries.

Model HD-2 has a durable zinc alloy head fitted with dual 4 inch optical plastic lenses designed to provide peak light intensity and diffusion. Producing approximately 90 brilliant neon flashes per minute, the light is reputed to be visible for over 1 mile on either side. Lenses are available in red, amber, clear or any combination of these colors.

The lights are designed for mounting on flasher barricades or on any barrier or warning sign. They are sold or rented and rental includes complete maintenance service.

R. D. Fageol Company, Kent, O. (Item 46)

Day-Glo Safety Signs

Designed as a new idea for promotion of traffic safety within communities, these neat, attractive pole units can be attached to street light poles, telephone poles, stop light poles, or sign posts at entrances to communities, high accident rate corners or downtown vantage points.

A set of 12 vivid, Day-Glo waterproof safety signs are designed for insertion into the unit. One is designed for each month and the signs are tied in with national safety themes and are on water-proof stock. They are printed in two colors, one of which is fluorescent Day-Glo.

Waukegan Graphic Arts, 1303 Grand Ave., Waukegan, Ill. (Item 47)

Portable Emergency Light Cover

A handy, multi-purpose cover for portable Fireball emergency warning lights allows unmarked patrol vehicles to use the light from the dashboard instead of the car roof. The cover's wide front opening allows the revolving light to flash forward while still shielding the occupants of the car from the distraction of its bright beams and reflections.

It also provides a protective case for the warning light while in transit or storage. Autos of deputies, volunteer firemen, civil defense officials, as well as unmarked police cars can be turned into official emergency vehicles within a matter of seconds. Six or 12 volt models have a 12-foot cord which plugs in the cigarette lighter. It is attached to a car roof or any metal surface by three powerful permanent magnets. The light is available with a red, clear white, blue, green, or amber lens.

Federal Sign and Signal Corp., 8700 S. State St., Chicago 19, Ill. (Item 48)

Fiberglas Stop Signs

12 inch stop signs made with short wooden handles are for use by school crossing guards. They are made of Fiberglas and are very light and are available in yellow with black lettering or red with white lettering. The signs are octagonal in shape and are extremely durable. These features make them practical for use by school guards.

Carsten Products, 5406 Thomas, Allen Park, Mich. (Item 49)

SAFETY PRODUCT LITERATURE

Rock Salt

The Morton Salt Company is offering a pamphlet, entitled "Take A Step In The Right Direction," which details the advantages of using straight Rock Salt for ice and snow control. It illustrates how and why Rock Salt is safer and more economical for use on streets and roads, and gives a brief summary of how to use Rock Salt for de-icing and snow removal. Morton Salt Co., 120 South La Salle St., Chicago 3, Illinois.

For more details circle No. 81 on enclosed return postal card.

Dictograph

A special brochure released by Dictograph Products, Inc., 92-25 149th Street, Jamaica 35, New York, describes a new product which gives instantaneous intercommunication between several persons at one time. The Dictograph is stated to jump the switchboard-and-at the same time release the board from the burden of these calls, speeds up outgoing calls and offers complete privacy of conversation. The Dictograph station unit carries a push-button for every member of the linked group with each name listed beside it. Reception is by a loud speaker or hand set with some models permitting selection of either, as desired.

For more details circle No. 82 on enclosed return postal card.

Aluminum Traffic Signs—Last Longer

Traffic Signs constructed of Alcoa Aluminum won't rust or corrode, never need painting. These lightweight units are easy to handle and simple to erect. They are fully described in literature from Aluminum Company of America, 1680 "G" Alcoa Building, Pittsburgh 19, Penna.

For more details circle No. 83 on enclosed return postal card.

Brighter Warning Lights

Wherever you need efficient warning lights—for street repair work, sewer maintenance and road construction—you can depend on Dietz Visi-Flash Hazard Warning Lights. These transistorized units are shock-proof, use minimum current and won't wear out. Catalog gives full details and price list. R. E. Dietz Co., 100 Leavenworth Ave., Syracuse, N. Y.

For more details circle No. 84 on enclosed return postal card.

Fast Way to Mark Skip Traffic Lines

This new device for intermittent marking of streets and roads is proving highly successful in controlled area tests throughout the country. Called the SL-46 Skipliner, it can be used for truck towed stripers of all makes and, in addition, can be adapted for larger type portable, self-propelled stripers. Wald Industries, Inc., Huntington, Penna.

For more details circle No. 85 on enclosed return postal card.

Portable Radiophone for Police, Firemen

Extended coverage and clearer messages are offered by the New Motorola Handie-Talkie Portable Radiophone. The small, light-weight unit uses new circuits, transistors and sub-miniature components. It is available in a choice of 43 models. Motorola Communications and Electronics, Inc., 450 West Augusta Blvd., Chicago 51, Ill.

For more details circle No. 86 on enclosed return postal card.

Turns Street Lights on and Off

Automatic, dependable switching of street lighting circuits when illumination is needed, regardless of time of day, season or weather, is assured with Fisher-Pierce Photoelectric, Lighting Control. The Fisher-Pierce Co., Inc., 82 Pearl St., Boston 85, Mass.

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Street-Name Signs

With the Tassco Tomcat, a street name sign of sturdy aluminum, motorists get clearly visible traffic directions around-the-clock. These maintenance-free signs are described and illustrated in Brochure No. 57. Traffic and Street Sign Co., 84 Foundry St., Newark 5, N. J.

For more details circle No. 88 on enclosed return postal card.

Fire and Police Sirens

Catalog illustrates and describes fire and police sirens and flashing warning lights. Included are design features, specifications. The Sireno Company, Inc., 214 William St., New York 38, N. Y.

For more details circle No. 89 on enclosed return postal card.

Driver Training and Testing

Catalog of devices and visual aids for over-the-road and in-plant drivers. Includes psychophysical testing equipment for reaction time, depth perception, visual acuity, field of vision and color recognition. Also shown are stopping distance meters, safety awards, traffic slide rules, etc. Porto-Clinic Instruments, Inc., 298 Broadway, New York 7, N. Y.

For more details circle No. 90 on enclosed return postal card.

Traffic Surveys

Illustrated bulletin describes a time-tested device for traffic counting. Called the Traficounter, Jr., traffic volume is easily read on direct reading counter. It is pneumatically actuated by means of the road tube attachment. Streeter-Amet Co., Grayslake, Ill.

For more details circle No. 91 on enclosed return postal card.

Teaching Your Drivers Safety

Here is an aid that has proven practical in teaching visually the principles of safety. It's simple, effective and works wonders in teaching your drivers. Folder contains full information. Magno-Saf-T Board, Emigsville, Penna.

For more details circle No. 92 on enclosed return postal card.

Emergency Stretchers

Emergency Stretchers especially designed for first-aid use and which folds for easy storage are described by Bulletins of Washington Products Co., 238 South Fayette St., Washington Court House, Ohio. The Stretchers are made of aluminum and have rubber bottoms.

For more details circle No. 93 on enclosed return postal card.

Reflective Marking Materials

Catalog offers a complete line of reflectorizing products for applying "Safety" to roads, signs or obstructions on highways, city streets, at industrial installations, etc. Prismo Safety Corp., Huntington, Pa.

For more details circle No. 94 on enclosed return postal card.

For Lighting Streets, Residential Areas

Here's aluminaire for lighting residential areas or for any street where uniform low-level lighting is desired. The Urban-Lite end mounting luminaire provides an economical means of utilizing the smaller mercury lamps where higher intensities are not required, or it can be used with multiple incandescent lamps up to 4,000 lumens. Bulletin 700-51 gives full details. Revere Electric Manufacturing Co., 6009-17 Broadway, Chicago 40, Illinois.

For more details circle No. 95 on enclosed return postal card.

Safety Mirror

Bulletin describes a safety mirror developed to eliminate blind spots, prevent accidents, and increase vision for safer school and intracity bus operation. The Safety Cross Mirror Co., Lombertville, Mich.

For more details circle No. 96 on enclosed return postal card.

Electronic-Traffic Emergency Control

The driver of an emergeny vehicle knows when an inter-section is clear with an EL-TEC UHF radio-controlled system. Positive and automatic control of traffic signals by emergency vehicles protects lives of highly-trained policemen and firemen . . . AND . . . motorists and pedestrians. Electronic Protection, Inc., 2089 N. Hawthorne Ave., Melrose Park, Ill.

For more details circle No. 97 on enclosed return postal card.

Emergency Sirens and Lights

A complete line of Sirens and Lights for emergency vehicles are described and illustrated in this folder, available from Federal Sign and Signal Corporation, 7655 South State St., Chicago 19, Ill. Emergency lights also include flashing and rotating beams, and double beams for mounting on vehicles.

For more details circle No. 98 on enclosed return postal card.

Expressway Travel Hard on Tires—Klamm

If you drive on high-speed expressways or plan an extended trip, you'll be wise to keep your tire pressure a few pounds higher than normal rather than underinflated, according to Edward R. Klamm, accident prevention director of Allstate Insurance Company.

This is especially important if your tires have been in service more than 10,000 miles, Klamm says. The worst thing a motorist can do, he points out, is drop the pressure in his tires below the recommended amount in the belief that this will make the tire more blowout-proof. Actually, dropping the pressure has the effect of setting up the tire for blowout!

A recent survey completed by Allstate indicates that tire failure has become a major cause of expressway accidents. Motorists with worn tires who have been in the habit of underinflating them in the belief that this will lessen tension in the casing, allow more tread to touch the road and give better traction are making a grave error, the survey shows.

Toll road police investigations reveal that improper tire care not only increases the likelihood of blowouts, but causes more skidding accidents on expressways. Worn treads reduce traction and steering control, particularly at high speeds on wet pavement.

Tire manufacturers say a few extra pounds pressure in a tire to be driven at high speeds will reduce distortion and heat build-up. They recommend two to four pounds pressure above normal when speeds of 60 mph or faster are expected over a distance of 20 miles or more.

Pennsylvania Turnpike reports for 1956 show that 23 per cent of all fatal Turnpike accidents and 8 per cent of non-fatal accidents were attributed to tire trouble. Tire failures on the New York Thruway occasioned 6,815 calls for assistance during the first six months of 1957, more than for the entire year of 1956. State police on the Indiana toll road answered 1,200 calls for help from motorists with flat tires, more than 500 more calls than from other distress causes.

The following suggestions are offered to make tires last longer under all travel and weather conditions:

1. Check tire inflation weekly and maintain recommended pressure. Checking and inflation should always be done when tires are cool.
2. Inflate front tires a few pounds higher than rear tires to allow for the greater load at the front of the car.
3. Avoid sharp impacts, tight turns, and scraping against curbs, which may damage treads or sidewalls. Don't drive fast on new tires for at least 1,000 miles.
4. Examine treads frequently for embedded objects which might eventually cause a leak. Inspect insides of tires for fabric injuries not visible from the outside.
5. Rotate tires at least twice a year and fit all valves with caps. Periodically have wheels aligned and balanced.

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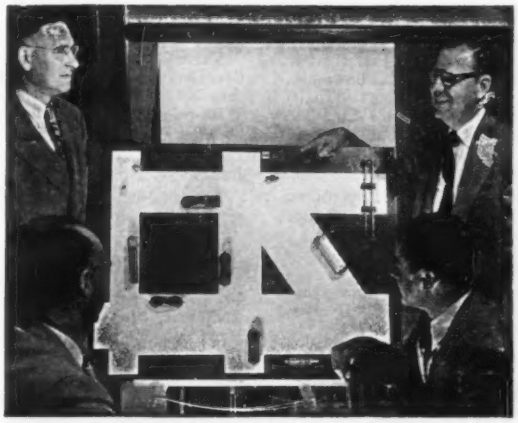

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It is now being used from coast to coast by fleet owners, insurance and public utility companies, colleges and schools, and many other concerns interested in public safety. Consisting of a BOARD with typical street intersections on one side. The other side is a BLACKBOARD on which any street or road situation can be drawn with chalk and then erased. It has scale models of vehicles, traffic markers and accessories that can be placed in any conceivable traffic situation.

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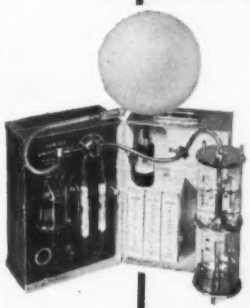

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COMING EVENTS

Nov. 18-22, Chicago

Annual Meeting American Association of State Highway Officials (Conrad Hilton Hotel). For Details: Executive Secretary, American Association of State Highway Officials, National Press Bldg., Washington 4, D. C.

Nov. 22-23, Columbus

Second Annual Ohio Youth Traffic Safety Conference (New Veterans Auditorium). Austen Moore or Harry Pontious, co-chairmen, c/o Nationwide Insurance Co., 246 N. High St., Columbus 15, Ohio.

December 9-10, Washington, D. C.

Conference of Public Officials. Sponsored by the President's Committee for Traffic Safety. Harlow Curtice, chairman.

December 9-10, New Orleans

Louisiana Safety Association Conference (Roosevelt Hotel). Charles E. Doerler, P.O. Box 1147, Shreveport, La.

1958

Jan. 6-10, Washington, D. C.

Annual Meeting of the Highway Research Board (Sheraton Park Hotel). Details from Highway Research Board, 2101 Constitution Ave., Washington 23, D. C.

Jan. 30-31, Milwaukee, Wis.

Sixteenth Annual Mid-Winter Safety Conference and Exposition (Hotel Schroeder). R. W. Gillette, executive director, Wisconsin Council of Safety, Room 234, One W. Wilson St., Madison 2, Wis.

Jan. 30-31, Philadelphia

Annual Meeting Private Truck Council of America (Hotel Sheraton).

Mar. 2-4, Memphis, Tenn.

Southern Safety Conference. W. L. Groth, executive director, Southern Safety Conference, Inc., P.O. Box 8927, Richmond, Va.

Mar. 5-6, Philadelphia

Annual Regional Safety and Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, executive director, Philadelphia Safety Council, Chamber of Commerce Bldg., 121 S. Broad St., Philadelphia, Pa.

Mar. 16-19, Dallas, Texas

Nineteenth Annual Texas Safety Conference (Adolphus Hotel). J. O. Musick, general manager, Texas Safety Association, Inc., 830 Littlefield Bldg., Austin, Texas.

Mar. 17-18, Boston

The 37th annual Massachusetts Safety Conference and Exhibit at the Hotel Statler, Boston; directed by Bruce Campbell, manager, and Bert Harmon, assistant manager, Massachusetts Safety Council, 31 State Street, Boston 9, Massachusetts.

Mar. 17-19, Los Angeles

Western Safety Congress and Exhibits. Joseph M. Kaplan, manager, Greater Los Angeles Chapter, National Safety Council, 3388 West Eighth St., Los Angeles 5, Calif.

Mar. 18-19, Ft. Wayne, Ind.

Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, manager, Safety Council, Chamber of Commerce, Ft. Wayne 2.

Apr. 9-11, Gainesville, Fla.

Fifth Annual Conference on Accident Prevention Engineering (University of Florida). Donald B. Wilcox, conference coordinator, Dept. of Industrial Engineering, University of Florida, Gainesville, Fla.

Apr. 15-18, Detroit

Twenty-eighth Annual Michigan Safety Conference (Sheraton Cadillac Hotel). Ben Daguid, executive secretary, c/o Allstate Insurance Co., 16130 Northland Drive, Detroit 35, Mich.

Apr. 22-24, Columbus, Ohio

Twenty-eighth All-Ohio Safety Congress and Exhibit (Deshler-Hilton Hotel). Arthur W. Moon, congress manager, Room 611, Ohio Dept. Bldg., Columbus 15, Ohio.

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Traffic Safety

FORMERLY PUBLIC SAFETY

A NATIONAL SAFETY COUNCIL PUBLICATION

VOL. 1 No. 3
DECEMBER 1957

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The *Research Review* is a quarterly supplement published by *TRAFFIC SAFETY* for the complete reporting of research related to traffic safety. The National Safety Council and *TRAFFIC SAFETY* offer this service to those researchers, technicians, etc. in the field because there is no similar outlet for publication of their findings.

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RESEARCH AS APPLIED TO TRAFFIC ENGINEERING

by Dr. Lawrence R. Hafstad

Vice President in charge of Research Staff, General Motors Corp.

EVERYONE in the United States is interested in cars, and gradually becomes a self-appointed expert on how cars ought to be made. My background is such that I cannot claim to be an expert in the field of traffic control, but, since I have had considerable experience in the Research field, it may be of interest, if I give you some of my impressions as a professional research man coming seriously in contact with the so-called "traffic problem" for the first time. I recognize that this problem has a number of facets and I would like to deal for the moment with one—traffic safety. Traffic safety is composed of three elements—the road, the car, and the driver.

While the fields of road design and of car design have been pretty thoroughly explored, there are still some areas that can benefit from research. It is clear that the short-range, immediate problems are being competently handled by experts. But how about the longer-range problems of ten and 20 years from now? Solution of these problems will require considerably more emphasis on research than in the past. We have come a long way from the dirt roads of the past generation to the expressways of the present. Clearly an expanded and improved road system represents one of the greatest single steps which could have been taken toward greater safety on our roads.

The national highway building program gives us the opportunity, if we can move fast enough, to incorporate rapidly into the system new things developed through research. It is both an opportunity and a challenge. "Whatever is done well can be done better, and whatever is good can be improved." This must be our creed.

Address delivered before the 27th Annual Meeting of the Institute of Traffic Engineers, September 24, 1957, Hotel Statler, Detroit, Mich.

As a strictly personal reaction, I am impressed by the extensive literature and the enormous compilation of data with which the neophyte in this field is confronted. I have rarely started reading in a new field where I have found it so hard to come to grips with the core of the problem. One quickly gains the impression that while it is generally considered that there are too many accidents, as a nation we seem unprepared to pay the price required for a further reduction of accidents. This leads to a school of thought which seems to feel that further research is useless since we already know of more things to do than the public is prepared to finance. Accordingly, scattered throughout the literature there are repeated references to the enormous complexity of the problem, and there occur alternately hysteria and overtones of hopelessness which seem to me, as a newcomer, totally unjustified.

To a research man a problem begins to look hopeless only when all conceivable approaches have been explored to a bitter dead end. In connection with the traffic problem, we seem to have done a pretty fair job in seeing what can be done with concrete, steel and asphalt. But there are almost an infinity of other approaches to the problem which have long remained, relatively, almost untouched. I am convinced that more progress can be made in traffic safety by emphasizing the relations between the driver, the signalling system, and the road, than by undue emphasis on a crash-proof car—which could lead us into the progressive stalemate analogous to the classic conflict between projectile and armor plate!

By this I am implying obviously that in my opinion not much research, and certainly not enough of the right kind of research, has been or is being done on the transportation and traffic problems. This may seem a shocking statement to some of you who are already deluged with statistics. However, I have two comments to make in defense of

". . . an area where the semantic noise level is high indeed"

my contention. The first is that the transportation industry as a whole is so fantastically large that a trivial percentage effort in data collection is bound to give a large volume of statistics. The second comment is that collecting and compiling statistics is of itself an essentially sterile and uncreative activity and does not justify the name of Research.

It is always helpful to define precisely the terms we use in a technical discussion, so I offer the following as a definition of Research in the sense in which I will use it:

> **"Research is *not* constructing and manipulating; it is *not* observing and accumulating data; it is *not* investigating or experimenting; it is *not* getting the facts—although each of these activities may play an indispensable part in it. Research is the *effort of the mind* to comprehend relationships which no one has previously known."**

It is this kind of Research which I suspect and contend has too little support in relation to the extremely rapid growth of the transportation industry itself.

In the research business it is commonly stated that a precise formulation of a problem places one 80 per cent of the way along the road to its solution. After a considerable amount of reading in regard to the "traffic safety problem" it remains unclear to me precisely what is desired and by whom. Certainly this would be a most fruitful area for the kind of research which I envisage as being needed. Here is an area where the semantic noise level is high indeed.

Let us now seek to develop some perspective on this problem of automotive safety and to establish a few anchor points for comparison purposes. In Fig. 1 we show the trend curve, very familiar to all of you, for traffic fatalities per hundred million miles of travel. The indication is that automobile travel has become steadily safer, yet the popular literature seems to indicate the opposite. This is confusing. Perhaps then the trend is satisfactory but the absolute magnitude is intolerable.

In Fig. 2 we show the major causes of deaths in the United States in 1956. Two things stand out in this chart. First, the total deaths due to motor vehicle accidents are small compared to deaths due to cancer and diseases of the heart, nerves and blood vessels. Second, the fatalities due to auto accidents peak in the age groups from 15 to 45, which is just in the minima for other causes of mortality. This begins to give a hint as to the reasons for the special concern over traffic fatalities and injuries. Instinctively we feel that they are or should be unnecessary. Assuming agreement that this accident rate should be still further reduced, it becomes a technical problem to explore various means whereby this can be done. How vigorous should this effort be? This will be largely determined by the cost.

For additional light on this question, it might be helpful to compare further the traffic hazard to other hazards to which we are normally exposed. In Figs. 3 and 4 some results from one of Dr. Hardin Jones' studies(1) are given. These results are particularly interesting and revealing because they are given in terms of "relative displacement of physiological age" or probable shortening of the individual's life span. From this comparison we can draw the significant conclusion that while very real, the traffic hazard (being represented by an average life span reduction for a driver or car rider of approximately 1.3 years) is less than the hazard of being, say, 25 per cent overweight.

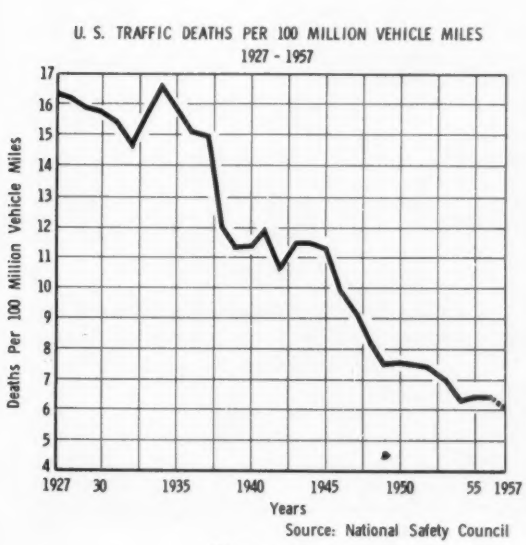

Figure 1

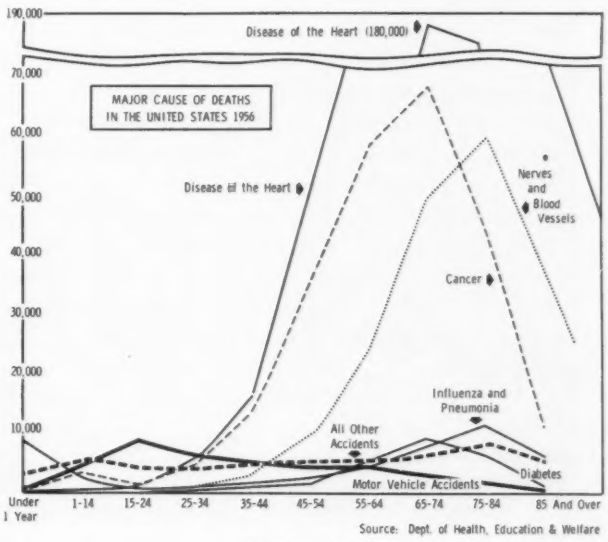

Figure 2

". . . systems engineering approval seems needed"

Thus the serious student of the hazard problem can begin to understand the reason for the often-deplored "public apathy" toward accident reduction campaigns, be they for the use of seat belts or driving speed reduction. Again let me emphasize that this is no excuse for discouragement on the part of those of us committed to a still further reduction in the accident rate. We have merely been able to specify one of the boundary conditions of our problem and that is that the public will be all for further accident reduction only if it will involve relatively little effort or inconvenience on the part of the driving public.

Have we perhaps reached the point of diminishing returns where each further increment of accident reduction can only be made at greatly increased cost? This is a fair question and a pertinent one. It is my impression that very rapid progress is really still being made. I cite as evidence the oft-quoted figures for fatalities on controlled access highways as being one third or one fourth of the national average. I cite further the report from Connecticut that with strict enforcement the fatality rate was dropped 11.7 per cent in 1956, while the national average was increasing by 5 per cent. These are very significant gains indeed, and suggest that attacks on other fronts might be equally rewarding. The problem for the traffic engineer is to ensure that so far as possible the effort and money be spent where the greatest return will be possible for the least cost. This brings us back to the research problem, for to determine this a lot of partial derivatives will have to be evaluated.

It is my impression that traffic engineers have been so preoccupied with the road and the car that they have relatively neglected driver motivation and responses. As a trivial example, would it be cheaper and more effective to place more adequate signs along a given stretch of road before a turn than to add another lane? It is clear that here we are up against just the kind of need for optimizing which is typical of systems engineering problems. This systems engineering approach, with its companion technique of operations research, is widely used and highly developed in the communications industry, in the aircraft industry, and in the missile business. It seems to be urgently needed in connection with the traffic problem.

One reason for this statement is that in connection with such studies in other fields it has become standard practice to use the "mixed team" approach with a generous infusion

Statistical Distribution of Lifetime Shortening by Travel and Industrial Accidents. (Vital Statistics of 1949, Adult White Males 20 Years and Older.)

	(PER INDIVIDUAL)
All accidental deaths	—2.3 yr — U.S.A.
Travel Accidents	
Railways	—0.06 yr — U.S.A.
Ships	—0.04 yr — U.S.A.
Motor-vehicle, driver and passengers	—0.67 yr — U.S.A.
Assuming only ½ of population spends time in automobiles	—1.3 yr — at risk
Pedestrian motor-vehicle	—0.2 yr — U.S.A.
Assuming this effect largely involves urban population	—0.4 yr — U.S.A.
Aircraft	—0.05 yr — U.S.A.
Assuming that ¼ of population (probably less) uses airplanes	—0.2 yr — at risk
Accidents-Industrial Machinery	—0.04 yr — U.S.A.
Assuming only 30% of males are employed on industrial machines	—0.27 yr — at risk

Values based on numbers of deaths attributed to accidents; estimates of life span lost are slightly low because survivors who are maimed, with reduced life expectancy, are not included.

Figure 4

Relative Displacements of Physiologic Age by Factors That Accentuate Aging (Minus Time) or Retard Aging (Plus Time)

REVERSIBLE	YEARS
Country vs city dwelling	+ 5
Married status vs single, widowed, divorced	+ 5
Overweight	
25% overweight group	— 3.6
35% overweight group	— 4.3
45% overweight group	— 6.6
55% overweight group	—11.4
67% overweight group	—15.1
or, an average effect of 1% overweight	— 0.17
Smoking	
Occupational exercise vs sedentary occupation	+ 5.0
1 pack cigarettes per day	— 8
2 packs cigarettes per day	—12

Figure 3

Those Violations Most Commonly Reported in Fatal Accidents, 94 Per Cent of the Total, During 1956 Are Listed Below:

1. Excessive speed	47%
2. Wrong side of road—not passing	13%
3. Disregard of officer or traffic control device	10%
4. Failure to grant right-of-way	10%
5. Improper passing	5%
6. Under the influence of alcohol	5%
7. Improper turns	4%

Figure 5

". . . psychologists and biologists—a still small squeaky voice"

of "outsiders." During and since the war, it has been repeatedly demonstrated that it is mainly from such "teams" of highly competent amateurs that one gets refreshingly new approaches to old and seemingly insoluble problems. The very slogan "Engineering, Enforcement, Education" might suggest that the human problem outweighs the engineering problem two to one. Are your research investments made in anywhere near this ratio? In the sample of the research literature which I have been able to cover, I find the contributions of the psychologists and biologists to be a still small and somewhat squeaky voice.

Suppose we had adequate financial support and a large number of such study teams. What kind of problems could be assigned to these groups, and what kind of results would we have a right to expect? As I have stressed before, it seems we must try to determine just what relative emphasis the public wants to have placed on the often conflicting requirements of mobility and safety. Just as a starter and as a first approximation we can turn to a recently reported Gallup poll study,(2) which lists the driving public's own suggestions for reducing the number of highway accidents, in the order of frequency of mention. It is significant that stricter law enforcement should be the first on this list. This is very much a "human" problem.

Bearing on the same problem is a report from the recent excellent work at the Yale Bureau of Highway Traffic, to the effect that the chronic violators on U. S. highways invariably turn out to be intolerant, aggressive, resentful of authority and with a high opinion of themselves. Will this situation be changed in the slightest by more acres of concrete? Still more fundamental, so far as long-term trends are concerned, would be the question of the real efficacy of the current campaign for "defensive driving." Laudable as this campaign may appear, as a scientist I have to ask the embarrassing question: What is the probable half-life of the defensive component of the population if the offensive component (the above mentioned "intolerant, aggressive and resentful" component) continues over the years to be rewarded with right-of-way privileges normally reserved only for visiting Chiefs of State? In plain English, how long will it be before the defensive driver is either "bumped off" or converted into an aggressive driver if is the latter who always wins? Trends

Figure 6

". . . mixed team approach vital to develop new ideas"

are usually determined by the forces acting. It seems to me to be a fair question to ask what psychological forces are acting on the driving public?

Still further along the same line, I find of interest and significance the statistics reported from the psychopathic clinic of Detroit at the Second Highway Safety Conference where 19 people had had 255 tickets for violations in 128 man-years of driving. With the most elementary application of sequential analysis to the statistics of violations, such individuals must surely stick out like a sore thumb. Yet the well-intentioned driver is charged with providing right-of-way for these people, while the law enforcement officer is expected to retain both his morale and his good nature as he patiently tags the same violators year after year. Does this really makes sense?

Still pointing up the enforcement problem, I would stress as a very fruitful area of research the relations between the driving public and the enforcement officers. How large precentagewise is the "well-intentioned" part of the driving public, and what determines this percentage? Certainly laws and regulations can be devised so that, say, 90 per cent of the driving public favors them. Should not some effort be made to provide instrumentation for assisting the officer to close in on and eliminate the careless driver and chronic violator?

I have touched upon only the first of the ten suggestions made by the driving public for reducing accidents. Each of the others could be equally stimulating as a source of important research problems if they were to be adequately and imaginatively explored. "There is gold in them thar hills!"—but to begin to extract it, it will be necessary to invest a much greater proportion of highway funds into research than has been the custom in the past.

Further to get maximum return from such research, I would like to urge greater use of the mixed-team approach which I have already mentioned and which is so successful in other fields. To get what I would call refreshingly new and different approaches to the traffic problem, it would be necessary to support the novel and interesting rather than only the obviously practical. I hope we need not repeat the errors of those who, in the early days of the war, were proudly and hopelessly intolerant of anything they considered impractical, even in research. The point is that no research man expects anything impractical to be introduced either on the battlefield or on the highway; however, to get one idea which is both novel and practical he must be allowed to explore ten ideas which are novel but of which nine prove impractical.

For another example, let us turn now to the field of car and highway instrumentation, for this is a field which

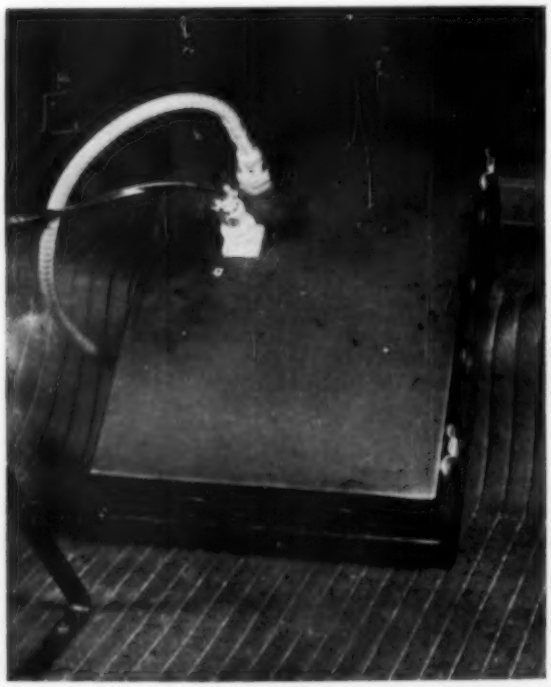

Figure 7

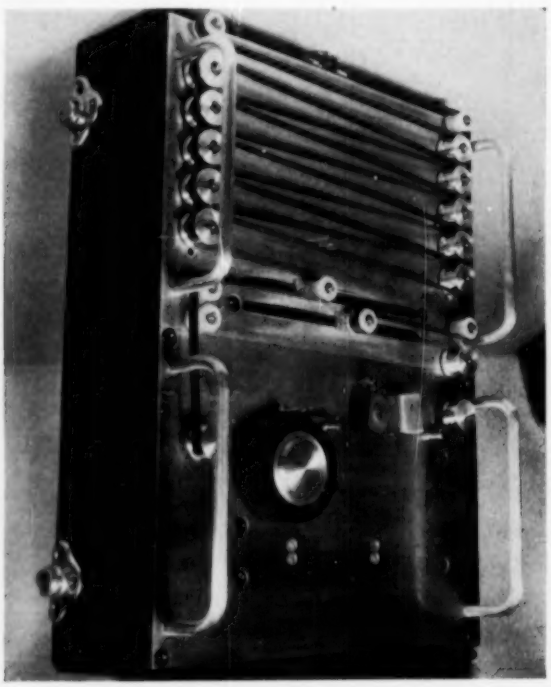

Figure 8

". . . are we really serious about law enforcement?"

should prove to be particularly fruitful of results in our continuing campaign both to increase mobility and decrease accidents.

First, let's ask ourselves if there is anything we can do to help the enforcement officer eliminate the chronic violator fringe. Upon reflection and with only very little effort and imagination we can conceive of an entirely new category of car instrumentation which we can call driver monitors. According to Fig. 5, excessive speed is given as the "cause" for most accidents.([3]) Thus speed becomes of interest, especially after an accident, for I gather from my background reading that there are occasional differences of opinion between the "collidor" and the "collidee." If I were an enforcement officer I would become impatient with testimony to the effect that a car going only 35 mph unexpectedly left the road and plowed through trees, barns and fields before coming to rest. If we are serious about persuading people to obey speed laws, why not introduce the use of a speed monitor that records speed continuously on an endless magnetic tape, retains the record for the last five minutes, and wipes out the previous record? In this case one would imagine the monitor kept in a sealed case during all normal driving and that it would be requisitioned by the authorities after an accident when the need for just such objective information becomes crucial. Is this practical? That depends upon how badly it is needed. Is it technically feasible? Most assuredly. In Figs. 6 through 10 a laboratory version of such a device with the play-back device and a final record are shown. Are we really serious about law enforcement, or are we just talking?

Clearly there are an infinite number of variations of such a monitoring device. Accelerations could be recorded to identify the "jack rabbit" type of driver. Or, if desired, the total number of times a driver improperly crossed a "no passing" pavement marking could be recorded.

Another type of monitor, and probably more "practical," might be along the following lines. We have all become familiar with the radar installations at roadsides. These transmit a signal to enforcement officers when the speed limit is being exceeded, but it seems to me very bad psychology indeed that no signal is recorded in the offender's car. With simple instrumentation a relay could be provided in the car which, coupled with the roadside device, might flash a warning light, initiate a persistent raucus sound, or perhaps even better, the playing of "Nearer My God To Thee" on a Swiss music box. With the addition of a veeder counter, again in a sealed container, the number of annual violations would be available for perusal by the authorities.

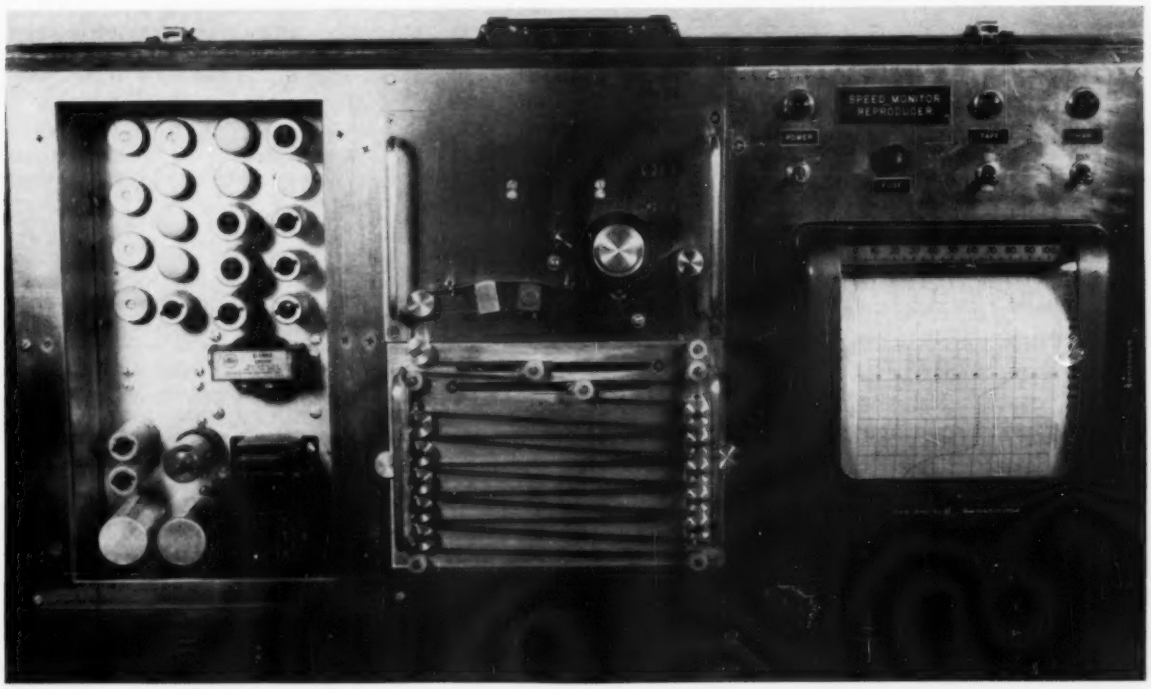

Figure 9

". . . two instrument panels might be desirable"

As I have said, the variations are limitless, but with cards stacked so heavily in favor of the violator as against the law-abiding driver, perhaps some of them should be looked at seriously. The above suggestions are cited not necessarily as recommendations, but as examples of the kind of unconventional ideas which are likely to emerge if more of a mixed-team or operations research approach is introduced into the traffic problem area.

Still trying deliberately to be stimulating rather than practical, and to generate novel ideas and new lines of thinking, let me ask a few questions about the instrumentation on our current model cars. This is an area more the responsibility of the manufacturer than of the highway engineer, but with the system approach we must concern ourselves with all aspects of the problem and surely the driver-to-instrument link is an essential one in the chain of relationships from driver to road and back again.

Pondering this problem as a layman and strictly as an amateur, I ask myself what information I want as a driver rolling along an expressway, and then try to note whether or not I am adequately serviced. It is my impression that there is much room for improvement in this area—if we can be prepared to make a break with tradition as drastic as that of styling in recent years. As a driver I would like to know, continuously and with my eyes continuously on the road:

(1) that I am running at a safe speed for that particular section of highway under the specific road conditions of snow, ice, etc. that prevail at that particular time;

(2) that I am within the legal speed limit;

(3) that I have at least enough gasoline to reach the next gas station;

(4) whether or not there are cars approaching from the rear, right rear, or left rear;

(5) whether I could safely pass a car ahead in the face of oncoming traffic;

(6) whether or not, if I could pass a closely bunched group of cars just in front of me, I could find open road ahead;

(7) whether or not I have fallen or am falling asleep; and

(8) how often this section is patrolled to provide aid in case of breakdown.

With my eyes on the road where they belong, my instruments tell me none of these things. Regarding some I can get partial information with furtive stolen glances. Regarding most I get no information at all.

At the other extreme, perhaps different instrumentation is needed to tell the driver more about the actual performance of the engine and other components of the car, even when standing still.

While these latter problems fall in the bailiwick of the automotive designer, I cite them to you to suggest that perhaps two instrument panels might be desirable—one, (using either aural signals or visual signals within the view of the driver) for running conditions on an expressway, a second for engine performance analysis at zero or near zero speeds. A trend in this direction might open a whole new chapter in road-to-driver signalling and communications systems. From the safety standpoint, once the two types of instruments are distinguished it would become possible to hinge, rotate, or otherwise automatically cover the low speed group at speeds above, say, 30 mph, so as to present on the dash board not angular instrument controls but a thick cushion of energy-absorbant plastic.

Follow Aircraft Trends

That such a switch in instrument panel philosophy is not unthinkable is indicated by current trends in the aircraft instrumentation field. It has been recognized, belatedly, that the pilot is not really interested in the exact number of gallons of gas in his various tanks. He is interested in his exact present location and the choices he has of alternate landing fields based on his present gasoline supply. This is simply and convincingly given by an electronic instrument map presentation with circles of residual range radius, centered on his present position point.

We have in the above touched upon one facet of the communications problem, but this is really one which has ramifications in a host of different directions all suggesting fruitful research areas. We have all experienced the curious discourtesy of the average driver and there is frequent reference to it in the literature. Here is a problem so fundamental that we should have in assortment of psychologists hard at work on it. Not being a psychologist I must leave this field to others, but I cannot help but wonder how different car courtesy would be if cars could somehow say to one another, "Pardon me," "Thank you," and "After you, Alphonse."

A more technical facet of the same problem is that of signalling driver intentions and speeds to other drivers. Here is a whole area of driver communications which justifies intensive research.

Road Signs Should Talk Up

Moving to a higher degree of sophistication in the communication and instrumentation fields, there is the interaction between the road signs and drivers. Most of us learn in about the sixth grade how to write so that we can be understood. Some of us spend the rest of our lives trying to learn to write so we cannot be misunderstood. In my opinion, the road signs and the signalling system of the car owe it to the driver to keep him so informed that he never breaks the law or takes unknown risks unintentionally. Here our conventional system of speed limit and other signs seems inadequate. There is the sign whose meaning is obscure—the sign which is too small—the sign which is too close to the area it controls—the sign which has meaning only for the local resident—and so forth. The problem is not trivial, for more is at stake than the inconvenience of, say, one driver in a thousand. The bewildered driver is a hazard to all others in his vicinity. How great this hazard is, and how it can be reduced at minimum cost, gives us another research problem.

". . . better expressways mean more cars—more time in cities"

There are so many possible avenues for improving communication, each begging for more research, that I can mention only a few. The whole role of the subconscious in the driving operation seems to remain essentially unexplored. In observing my own driving carefully I have found upon occasion that I come to a full stop for a flashing red warning light and wait indefinitely for the light to change to green! Apparently my subconscious has really learned the basic rule, "Never go through a red traffic light." Surely this would be a profitable area for research.

We have all experienced the problem of discerning a tiny red or green traffic light against a kaleidoscopic background of bright neon lights of all colors and frequencies of flashing. Would it help to take a page from the experience in the radio-communication field and reserve for traffic signals a frequency of, say, two cycles per second and carefully exclude all other signs from the neighborhood of this band? Under such conditions, perhaps with training, the problem of locating and reacting to traffic signals could be transferred from a resentful and bewildered conscious to an automatic and dependable subconscious.

At a still higher level of sophistication, one might consider duplicating the traffic signals from the roadside, inside the car, where they would speak with considerably enhanced authority. This might involve a system of electrical cables buried in the pavement, but with a new road construction program just getting under way, even this is no longer unthinkable. Here the difficulty lies only in stepping up our research program so that it can be determined what ought to be done in time to have it incorporated in at least part of the construction program. In my opinion we are already late.

From cables for signalling to cables for control is just another step in sophistication and cost. Such systems are sure to come for high speed expressways, and with adequate research such expressways can be expected to develop continuously toward both greater speeds *and* greater safety. If the arrogant and uncooperative minority of drivers can be eliminated, one can begin to conceive of expressways which can be made essentially idiot-proof.

I have tried to indicate above that research has much to contribute to the solution of what we refer to as the traffic problem. Most of what I have said, however, refers to the problems of the open road. It should therefore be emphasized that the better expressways become, the more traffic in the urban areas will become congested. If cars spend less time *between* cities they must necessarily spend more time *in* cities. What is to be done about this local urban traffic problem, which has been relatively neglected? Here considerably more money invested in research would pay real dividends. The problem is clearly quite different from that of the open road, the emphasis being more on mobility

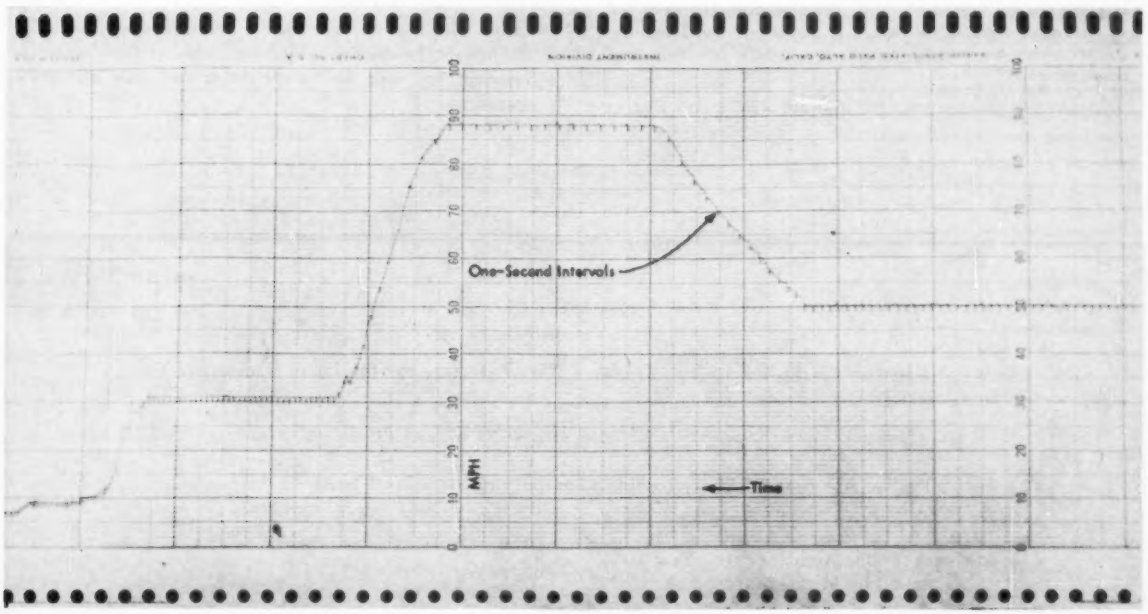

Figure 10

". . . there are big dividends in research in the transportation field"

and less on safety. This problem admittedly becomes extremely complex, but as it increases in complexity it also becomes more amenable to a statistical approach. This is an area in which the modern researcher has enormously powerful tools at his disposal. In this field the much publicized electronic brains come into their own. Simulators and analog as well as digital computors have their contributions to make.

Many of you are already familiar with developments in this field and are beginning to bring them into use. Traffic control devices which effectively count traffic in all directions at an intersection and adjust time intervals automatically to give maximum traffic flow are examples of such computors. From single intersections we can expect the application of such devices to be expanded to include networks of roads and eventually entire communities.

There is currently still such a shortage of technical skill in this field of computors and data processing that most of the available talent is being absorbed by military problems. As talent becomes available, and begins to show what contributions it can make in the traffic control field, I predict that traffic control gaming using these devices will become just as popular and productive as war gaming has been in the recent past.

The urban traffic situation does indeed present the appearance of a maze of insoluble problems. But other even more difficult problems have been solved by research. I am reminded of a statement made a little over 100 years ago by the great chemist, Wöhler, with regard to the status of organic chemistry at that time. Wöhler wrote to Berzelius as follows:

"Organic chemistry just now is enough to drive one mad. It gives me the impression of a primeval tropical forest, full of the most remarkable things, a monstrous and boundless thicket, with no way of escape, into which one may well dread to enter."

In summary, I have tried to indicate why I feel that in spite of the admitted fact that we already know more about the solution of traffic problems than we can persuade the public to accept, there are still big dividends to be collected from more research in the transportation field, both as regards mobility and safety. I am convinced that, relative to the work on the roads and on the car itself, the research in regard to the driver and his interaction with his environment has been neglected and such research should prove most fruitful in the next decade. Finally, I would urge that the large investment which we as a nation are about to make in roads should be adequately protected by sufficient research to ensure that they function effectively as part of the overall system involving the driver and his motivations, stimuli and responses, as well as the road and the car.

I am aware that an allocation of 1½ per cent of the new highway fund has been made for the purpose of "research, surveys and planning." My fear is that unless *real research* is vigorously defended, surveys and planning will quickly absorb these funds. One might hope that monies for surveys and planning might come from those assigned to construction. The best insurance we could have for a healthy traffic situation ten to 20 years hence would be for the major part of this allocation to be invested in the kind of research I have tried to describe to you.

Since we have discussed so much instrumentation and gadgetry, I want to correct any impression that such instrumentation will displace human intelligence. I feel about this problem like the airplane pilot who was asked if he thought his profession was here to stay, in view of developments in the guided missile field. After due deliberation he indicated he thought human pilots would continue to be used, for, as he put it,

"How else can you get such a versatile non-linear servomechanism, producible in quantity, with so little capital investment, by such low grade help, and such pleasurable means?"

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Accident Records put to use via—

SHORT FORM SELECTIVE ENFORCEMENT

by Don Hill,

District Director, National Safety Council

Definition: *"Selective Enforcement" is a much belabored and little-understood concept. Stated simply, it means giving attention to and applying the available enforcement strength to the times, locations, and violations in proportion to how these factors contribute to the total accident experience.* Application: *The principle is generally accepted, but difficulty is encountered in application. Materials used in selective enforcement tend to be clumsy and to contain unnecessary information. Before application reaches the extent it should, they collapse of their own weight.*

DIFFICULTY arises in field direction, particularly in communicating selective enforcement information to those who must apply it—the men on the line. Many communications are by word of mouth only. In many cases, the officer is depended upon to look at a spot map on a squad room wall and do his own interpreting. Even when given to officers individually and in writing, many such communications are either so brief that they give only the "what" and not the "why" of selective enforcement, or they are so full of unnecessary detail that they discourage the average police officer from paying adequate attention to them. Preparation of material in forms that will interest the officer, such as graphs, bar charts, and the like, requires a prohibitive amount of the time of scarce technically-trained personnel.

So, too often, instead of being simple, routine, and constructive as it should be, selective enforcement becomes "something special" practiced in a manner akin to witch-doctoring by a few who are short on facts and long on speculation. It is irritating to the supervisor because of the manpower it uses with questionable results, and it is mistrusted by the man on the line because it tells him so much that he doesn't understand, so little that he does.

Needs: The fundamental needs are:

1. A basis for enforcement selective by *time.*
2. A basis for enforcement selective by *location.*
3. A basis for enforcement selective by *violation.*
4. *Field Direction*—adequate, motivating communication of these bases to field personnel.
5. *Performance checks* to determine how well enforcement "fits" the accident experience.

The Short Form System

The Short Form Selective Enforcement system presented here undertakes to meet these needs *within the limit of resources available to the average police department.* Hand tally summary methods can be used in cities under 100,000; mechanical tabulation in larger cities and in states.

The system is simple, flexible, and useful. It employs two basic devices which can be used separately or together: (1) an *Accident Forecast* and (2) a *Selective Enforcement Analysis.* Each is contained on one side of one 8½ by 11 inch sheet of paper and can be mimeographed.

A single sheet of paper gives the individual officer information on both the "what" and the "why" he needs to guide him and assures the supervisor that the officer understands what is expected.

Making up a sheet requires that supervisory or technical personnel spend a small amount of time instructing the person who will actually sort the cards or run the tally. The great majority of time required thereafter is for a simple clerical operation.

The form is flexible, since a single sheet can cover a period of time of any length—from one day to several years —all days of the week or one or more selected days, or any number of hours of the day from 1 to 24. It can cover a single location or area or can cover the entire city or state.

Time, location, and violation factors can be handled singly, or they can be grouped. All factors are shown *in percentages.* This is the most useful form for projecting time, location, and violation factors in future accidents.

Information is organized so as to be of maximum usefulness to the *police officer on patrol* and is related to what he normally sees, what he should look for, and to specific violations as reflected by driver behavior patterns. This is particularly valuable in the "VIOLATION" table, which combines standard violation classifications into readily-comprehended categories

. . . forecast made from accident records, trends

and clearly shows imbalances between accident violations and arrests.

One-fourth of the sheet is reserved for comment supported by data in the tables and for instructions to officers.

Selective Enforcement Analysis

An Accident Forecast should be made before the time period during which enforcement is to be used. Following the period, the Selective Enforcement Analysis should logically be made. However, past practice suggests that the Selective Enforcement Analysis should be discussed first.

The Selective Enforcement Analysis is adapted from a method in use for many years—the accident-enforcement factor balance analysis. But it is stripped down to essentials.

Stress on Selectivity

Factor balances are shown in percentages only. Actual numbers would clutter the page and be of limited value to the officer in the field. Also, attention remains on selective enforcement, since no material concerning other matters is on the sheet. Amount of enforcement, totals, and period-to-period comparisons of accident experience are covered by other devices.

Accident Forecast

The Accident Forecast predicts future accident patterns upon the basis of past experience—usually upon a comparable period in the previous year, or in the case of smaller cities, the past several years.

It has a psychological advantage in looking to the future, rather than the past; in being positive, rather than negative. Its dramatic quality is good public relations. Thought and conversation are stimulated, and, if predictions are accurate, it builds a spirit of teamwork between the statistician, the supervisor, and the officer on the line.

Procedure

Standard statistical procedure is used throughout both the Accident Forecast and the Selective Enforcement Analysis.

1. Decide the area and period to be covered. In the forecast, make sure that the base and projection periods are comparable. Take into account seasonal influences and community activity patterns. For example, although it differs from location to location, a community's year might break down into five seasonal patterns:

(1) *January* and *February*—"dead of winter" community habits and driving conditions; no particular holidays or other occasions to gather crowds.

(2) *March, April,* and *May*—weather is improving, and people are moving about more. Children are still in school.

(3) *June, July,* and *August*—extensive motor vehicle use and vacations. Strangers in town.

(4) *September* to mid-*October* — back to school.

(5) Mid-*October* to *New Year's*—football games and crowds, holidays, quickening commercial activity. Worsening driving conditions.

2. "Balance out" days of the week. Make sure there are the same number in both periods.

3. In the Accident Forecast, evaluate and give weight to crowd-generating factors varying between the two periods. For instance: Community festival this year and none last year; an athletic contest played here last year and away this year; an event that occurred last year on Fridays, this year on Mondays; crowds caused by political campaigns, inaugurations, or other variable factors.

Traffic Inventory Evaluation

Evaluation of Selective Enforcement

AN EXPERIENCED statistician can come up with accident experience by hour of day, day of week, pinpoint the age group, location, cause and violation involved. But it's all based on good accident record keeping.

HAND TALLY SUMMARY methods can be used in cities under 100,000 population. Results are the same as with mechanical tab systems. Big need is for field direction and follow-up performance check.

. . . number of violations is the common denominator

in the Inventory is nominal, not exhaustive. Full credit is currently given for:

—Three instances of material usable as basis for selectivity by time.
—Three instances of material usable as basis for selectivity by location.
—Three instances of material usable as basis for selectivity by violation.
—One exhibit indicating field direction by time, one by location, one by violation.
—One exhibit showing a check was made of performance by time, one by location, one by violation.

A single exhibit might well be credited on two or more of these points. For example, a single sheet Selective Enforcement Analysis as described herein would be credited as:

Basis for selectivity by time	1
Basis for selectivity by location	1
Basis for selectivity by violation	1
Field direction by location	1
Field direction by violation	1
Performance check by location	1
Performance check by violation	1

Thus nine of fifteen possible points of evaluation would be fulfilled by the one sheet of paper. With an Accident Forecast or a second Selective Enforcement Analysis added, full credit would be achieved.

This fulfillment of nominal measures by no means represents as much selective enforcement as any city should practice. As familiarity with the use of selective enforcement method becomes more widespread, evaluation measures will be raised.

In the Selective Enforcement Analysis, make no adjustment, but take the variable factors into account in studying the analysis. This will help in evaluating variables in making other forecasts.

4. The blank columns are "group" columns. Disregard them on the initial statistical tabulation, then use the information derived from this tabulation to decide on how to "group" days of the week, hours of the day, locations, or violations to make best use of available manpower. Indicate groupings by horizontal lines across the column and put the percentage figures in the middle of each space thus made.

5. In the VIOLATION table, condense standard accident-violation classifications into the categories shown. These are more meaningful in relation to what the officer actually sees on patrol. The denominator for this table is the *number* of violations in accidents. It is not necessary to try to "balance" base figures as between the several tables. The *percentage* is the thing.

The "grouping" column in the VIOLATION table is partly lined to indicate different violations growing out of the same basic driver behavior patterns (Such as: (1) Wrong Side and Passing; (2) Improper or No Signal and Turning; (3) Ran Sign and Ran Light) or violations to which less attention is paid in enforcement than their frequency in accidents would justify, such as Right of Way and Following too closely.

6. In *comment*, make it brief and be sure the data supports it.

7. Make separate sheets for as many areas and periods as considered desirable. Possibilities are endless. Examples: Entire city for a year; entire city for a season; entire city for certain days of the week or hours of the day during a season; part of a city for certain hours of the day on certain days of the week, such as weekends; a single street for certain hours of the day during certain days of the week during a certain season; and so on.

8. Provide a copy of each Accident Forecast or Selective Enforcement Analysis to each uniformed officer.

SPOT MAP provides information for accident forecast before time period during which enforcement is to be used. Accent must be on selectivity. Program showed better relations between police, public.

DECIDE THE AREA and period to be covered by selective enforcement effort. Make sure base and projection periods are comparable. Take seasonal influences, community patterns into account.

SAMPLE FORM

SELECTIVE ENFORCEMENT
ANALYSIS

Area_____ Period_____ to_____ 195__

DAY OF WEEK	Per cent of Acc.	Per cent of Arrs.	TIME —AM—	Per cent of Accidents	Per cent of Arrests	TIME —PM—	Per cent of Accidents	Per cent of Arrests
Monday			12 — 1			12 — 1		
Tuesday			1 — 2			1 — 2		
Wednesday			2 — 3			2 — 3		
Thursday			3 — 4			3 — 4		
Friday			4 — 5			4 — 5		
Saturday			5 — 6			5 — 6		
Sunday			6 — 7			6 — 7		
VIOLATION	Per cent of Acc.	Per cent of Arrs.	7 — 8			7 — 8		
D. W. I.			8 — 9			8 — 9		
Speeding			9 — 10			9 — 10		
Right of Way			10 — 11			10 — 11		
Following too closely			11 — 12			11 — 12		
Wrong side			HIGH ACCIDENT LOCATIONS OR AREAS				Per Cent of Accidents	Per Cent of Arrests
Passing								
Improper or No Signal								
Turning								
Ran Sign								
Ran Light								
Parking, Starting								
Other								

COMMENT:

SAMPLE FORM

ACCIDENT FORECAST

Area_____ Period_____ to_____ 195__

DAY OF WEEK	Per cent of Accidents	TIME OF DAY —AM—	Per cent of Accidents	TIME OF DAY —PM—	Per Cent of Accidents
Monday		12 AM — 1 AM		12 PM — 1 PM	
Tuesday		1 AM — 2 AM		1 PM — 2 PM	
Wednesday		2 AM — 3 AM		2 PM — 3 PM	
Thursday		3 AM — 4 AM		3 PM — 4 PM	
Friday		4 AM — 5 AM		4 PM — 5 PM	
Saturday		5 AM — 6 AM		6 PM — 7 PM	
VIOLATION	Per cent of Accidents	7 AM — 8 AM		7 PM — 8 PM	
D. W. I.		8 AM — 9 AM		8 PM — 9 PM	
Speeding		9 AM — 10 AM		9 PM — 10 PM	
Right of Way		10 AM — 11 AM		10 PM — 11 PM	
Following too closely		11 AM — 12 M		11 PM — 12 AM	
Wrong Side		HIGH ACCIDENT LOCATIONS OR AREAS			Per cent of Accidents
Passing					
Improper or No Signal					
Turning					
Ran Sign					
Ran Light					
Parking, Starting					
Other					

COMMENT:

TODAY'S TRAFFIC SAFETY DELINQUENT

THE DRINKING DRIVER

by Thomas A. Seales

TRAFFIC safety officials and laymen alike agree that the intake of alcoholic beverages makes the good driver bad and the bad even worse. Although it is recognized that intoxicating liquors may sometimes produce a temporary sense of well-being, it is commonly known that alcohol slows reaction time, dulls perception, distorts coordination and impairs judgment. Most drivers are aware that alcohol impairs and tends to destroy the basic human qualifications for safe motor vehicle operation. This widespread knowledge, however, seems to have had little effect on actual driver behavior. As each year passes, state and municipal traffic officials have become more and more concerned about the influence of alcohol in causing accidents.

In an effort to determine more reliable data about the influence of alcohol on the traffic problem and its control, the Association of Casualty and Surety Companies conducted a special questionnaire survey of the motor vehicle commissioners and chief enforcement officers of the 48 states and the District of Columbia. Replies to this questionnaire (copy appended) were received from 46 states and the District of Columbia.

The author is Educational Consultant for the Accident Prevention Department of the Association of Casualty and Surety Companies, 60 John Street, New York 38, New York. This study is an expression of facts and opinions based on existing knowledge and the results of a questionnaire survey of state traffic safety officials made in 1957.

How common is the practice of driving while drinking? According to the recent special report to the Association of Casualty and Surety Companies by state traffic safety officials, a known total of 5,158 fatal accidents which occurred during 1955 in 45 states and the District of Columbia involved one or more drinking drivers. This survey also revealed that, in 44 states and the District of Columbia, a drinking driver was involved in at least 130,143 reported accidents of all types.

The figures are shocking in themselves, but it is obvious they do not show the actual extent of driving under the influence of alcoholic liquors. These figures reveal only *some* of the drivers who, because of an accident, were found by police to have been drinking. In many accident cases, the fact that a driver had been drinking is not recorded on a report form—never reaches state motor vehicle records. How many drinking drivers escaped detection because luck or fate enabled them to avoid a traffic accident is completely unestimable.

Public Apathy

Public apathy and the frequent lack of support from courts tempts traffic police to make arrests only when a conviction is assured. In many sections of the country this assurance seldom exists.

While most people have been exposed to facts concerning the effect of alcohol on one's ability to operate a motor vehicle, the total of 142,906 convictions reported during 1955 in 41 states and the District of Columbia plus the untold number of guilty drivers not detected, reported or convicted, tells us that this vital message has gone unheeded. On a nationwide basis, our traffic safety education and enforcement programs have failed to prevent the drinking driver from getting behind-the-wheel.

Educational Needs

Concentrated and widespread educational campaigns, using all available educational facilities and public information media, can be effective in changing driver behavior. In conducting such campaigns on the dangers of driving while drinking, it should be remembered that those who need "educating" may not be in a receptive mood. In fact, many persons undergoing the educational process will avoid the stabbing truth whenever and wherever possible. Therefore educational campaigns on the effects of alcohol on the driver must be interesting, attractive and palatable. Messages must appeal to human emotions. And, the story must be repeated often enough to penetrate the armor automatically donned by the stubborn mind.

Enforcement Needs

To protect the public from those who fail to respond to educational approaches, public opinion should demand legislation which provides for the use of chemical tests and the use of standardized procedures for presenting test results and other supporting evidence necessary in courts to convict the guilty and protect the innocent.

. . . "DWI—social disgrace, moral wrong, criminal offense"

Public opinion must demand that our courts levy effective penalties where a likelihood of successful rehabilitation exists and demand that the driving privilege be withdrawn—permanently—from chronic repeaters.

There is no evidence that the alcohol-traffic problem is diminishing. The chances are that the situation will become even more serious in the future unless a firm conviction is held by every citizen that driving while under the influence of alcohol is a social disgrace, a moral wrong and a criminal offense.

Effect of Alcohol on Driving Ability

The Heavy Drinker

A drinker who is approaching or has reached a state of "anesthesia" is certainly an accident-producing hazard on streets and highways. But, such an imbiber who has trouble walking, who cannot understand his own native language, or is so sleepy that he is almost unconscious, is seldom found behind-the-wheel. Even if such a thick-tongued and thoroughly confused drinker is trying to operate a motor vehicle, his erratic behavior frequently

Number of Convictions for Driving Under the Influence of Intoxicating Liquor

During 1955 in 41 States and the District of Columbia

State	Number of Convictions Reported	State	Number of Convictions Reported
Alabama	2,855	Nebraska	1,361
Arizona	1,898	New Hampshire	595
California	10,133	New Jersey	385
Colorado	1,657*	New York	3,958
Connecticut	2,164	North Carolina	12,032
Delaware	346	North Dakota	1,157
District of Columbia	366	Ohio	3,453*
Florida	2,548	Oklahoma	1,683
Georgia	8,032	Oregon	3,410
Idaho	1,544	Pennsylvania	3,778
Indiana	8,690	Rhode Island	267
Kansas	1,066	South Carolina	5,110
Kentucky	4,990*	South Dakota	1,922
Louisiana	3,013	Tennessee	3,349
Maine	1,986	Texas	14,000†
Massachusetts	5,170	Vermont	361
Michigan	9,408	Virginia	2,733*
Minnesota	1,936	Washington	1,779
Mississippi	3,491	West Virginia	2,184
Missouri	217	Wisconsin	6.542
Montana	901	Wyoming	436

*Not Statewide Figure
†Estimate

EXHIBIT sponsored by the National Safety Council and the American Medical Association showing the effect of blood alcohol on the brain did much to establish validity of chemical tests for intoxication.

HARGER DRUNKOMETER TEST—One of the chemical tests used to determine amount of blood alcohol—in use. Chemical tests for intoxication are fair. They protect the innocent, spot the guilty.

. . . "social drinker is real menace . . ."

offers some degree of protection to others. Drivers and pedestrians are quick to notice that the "drunk" is weaving slowly down the road and they avoid him like poison. In other words, the drinker who has really "tied one on," who has reached the nauseous stage of intoxication either cannot drive, elects not to drive or—when he does so—is protected to some degree by the drinker's own misbehavior and the self-defense mechanism of other drivers.

The Real Menace

As far as safety is concerned the real highway delinquent appears to be the so-called social drinker. The driver who has had just enough alcohol in his system to release his inhibitions, who has reached the state of apparent stimulation or has a false sense of well-being is the one that forms a significant link in the causal chain of many traffic accidents. Since his moral code is temporarily relaxed, the driver with "only a few" tends to abandon normal precautions. He often submits to an urge to use a heavy foot on the accelerator, to pass when other cars are approaching, to take over the right-of-way or create other tight squeezes as if he owned the road. Unfortunately, this "superman complex" is acquired by the drinking driver at a time when his physical and mental qualifications for driving have been seriously impaired.

Tolerance to Alcohol

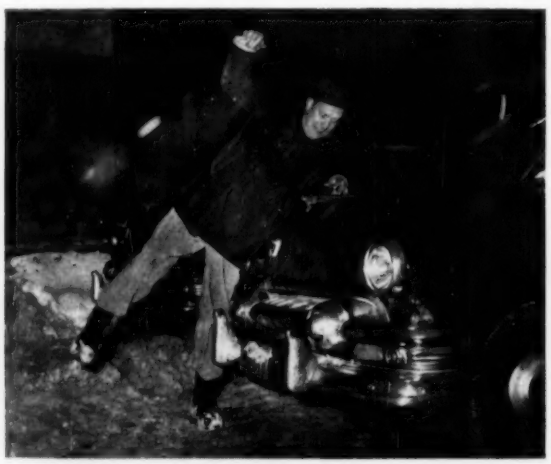
It is true that people differ in the amount of alcoholic intake needed to produce a given degree of intoxication. Some people have a natural capacity to hold more than others. This variance in tolerance to alcohol may be due to a difference in physical make-up or it may be an acquired tolerance resulting from oft-repeated social drinking or habitual use of alcoholic intoxicants. The amount of alcohol needed for an individual to reach a given state of intoxication varies from time to time due to such factors as food recently consumed, condition of the body, present mental attitude, etc.

Research has also shown that at a given concentration of alcohol in the blood, the intoxicating effect is more pronounced when the concentration is increasing than it is when the percentage concentration is waning. Moreover, when the concentration is increasing at a rapid rate, the effect on the central nervous system is greater than when the concentration is slowly increasing.

Experienced vs. Inexperienced

Alcohol would appear to handicap the novice even more than the experienced driver. If the two drivers, for example, have consumed a given amount of alcohol over the same period of time, have a similar tolerance to the intoxicant, are alike in physical make-up, have consumed identical foods, are in the same mood, etc., it is highly probable that the more experienced driver's ability will be less impaired by a given amount of alcohol than the less experienced. Because so much of driving is automatic for the experienced driver and is a complicated job for the inexperienced—requiring more thought and concentration—it stands to reason that alcohol's effect on the novice is more deadly.

THE REAL DELINQUENT is the social drinker—be he driver or pedestrian. A group sets out on holiday mood—a few drinks dim perception and they walk or drive themselves to death. It's a matter of record.



HOW MUCH ALCOHOL does it take to spur a pedestrian to walk out from behind a parked car into traffic? In this case, drinking and darkness form a lethal combination. The driver never had a chance.

. . . driving ability drops in proportion to alcohol intake

How Much Needed

Just how much alcohol is needed, then, to make a driver dangerous? Repeated experiments have shown that driving ability may be impaired when a relatively small percentage concentration of alcohol is present in the blood stream. Test after test, composed of skill exercises under carefully controlled conditions have proved beyond doubt that reaction time increases and ability to maneuver a vehicle decreases in direct proportion to the amount of alcohol consumed. While this knowledge is important in itself, it should be remembered that drivers being tested are consciously or subconsciously determined to do their best under these conditions. Therefore, results of such tests do not provide a true indication of alcohol's total effect on the driver's mental processes — which control his ability to maneuver an automobile.

That a very small amount of alcohol may alter a driver's will-power to drive in a safe manner is not a far-fetched assumption. While there is general acceptance of the idea that a driver must drink at least three or four ounces of whisky or more than three bottles of beer before he is "sufficiently under the influence" to drive in an unsafe manner, some people—at times—are so "suggestible" that even one sip of an alcoholic beverage will produce apparent signs of intoxication. This psychological effect can be as dangerous on the highway as the physiological effect produced by the consumption of larger amounts.

Act V of the Uniform Vehicle Code says that it is unlawful to drive while "under the influence of intoxicating liquor." For enforcement purposes, the trouble with the phrase "driving under the influence" is that no exact meaning has been firmly established to obtain sure judgment for the guilty. In an effort to shed additional light on this subject, our survey of state traffic safety officials included the question "What is the general rule-of-thumb meaning of 'driving under the influence of intoxicating liquors' in your state?" As might be expected, the interpretation was expressed in various ways. However, the response indicates that the following meaning could be applied in every state:

> "When there is an obvious impairment of a driver's normal ability to operate a motor vehicle due to the consumption of intoxicating alcoholic liquors, a driver may be considered as being 'under the influence'."

Drinking drivers may be roughly classified as follows:

1. Drivers who have "downed a few" but know the effect of alcohol, so do their best to compensate for the handicap—learning too late that their best is not good enough.
2. Drivers who are under the influence but do not exercise caution to compensate for the handicap — some get by, some don't.
3. Drivers who are well under the influence and "over-compensate" to the degree that they do not

IF THE DRIVER also had been drinking, chances are his speed would have upped as his inhibitions let down. Drinking drivers and pedestrians, not drunken ones, are the real menace on the roadway.

THE AMBULANCE or the coroner? Most cases involving drinking drivers and pedestrians wind up in the statistical file marked "Fatals." The psychological affects are sometimes worse than the physiological.

". . . one in five of fatals involves drinking driver"

blend well with traffic—they seldom know what hits them.

4. Drivers who can be described as "drunken"—stubbornly beligerent, stupid, or completely oblivious to surroundings.

It should be obvious that any stage of inebriation of any classification of drinking driver produces an accident hazard in traffic.

The Relation of Alcohol to Traffic Accidents

Traffic officials have always considered the consumption of alcohol by drivers as one of the major factors in the causation of traffic accidents. But, because the effect of such intoxicants on drivers tends to be a contributing factor rather than one easily isolated and because accident investigation practices throughout the country leave much to be desired, adequate statistics to pin-point the exact influence of alcohol on traffic accidents have not been made available.

Accident Involvement of Drinking Drivers

It is known that driving and drinking is a widespread practice and that a sizable percentage of drivers involved in fatal traffic accidents have been drinking. For years, annual additions of the National Safety Council's *Accident Facts* have reported that, according to records from a selected number of states, about 20 per cent of the fatal traffic accidents have involved a drinking driver or drivers. This information is now backed by the special report to the Association of Casualty and Surety Companies by state traffic safety officials. According to this survey, in 45 states and the District of Columbia, a minimum of 5,158 fatal traffic accidents occurring during 1955 involved one or more drinking drivers.

Drinking drivers were also involved in a total of 130,143 reported traffic accidents of all types during 1955 in 44 states and the District of Columbia.

Why the Difference

It is interesting to note that in most states, the percentage of fatal accidents involving drinking drivers is higher

Fatal Accidents Involving Drinking Drivers

During 1955 in 45 States and the District of Columbia

State	Number Involving Drinking Drivers	Percentage of Fatal Accidents	State	Number Involving Drinking Drivers	Percentage of Fatal Accidents
Alabama	138	25	Montana	43	21
Arizona	41	25	Nevada	12	20
Arkansas	56	13	New Hampshire	52	49
California	676	23	New Jersey	52	21
Colorado	128‡	25‡	New Mexico	50	17
Connecticut	68	24	New York	27	1
Delaware	54*	50*	North Carolina	304	29
District of Columbia	18	26	North Dakota	36	32
Florida	101	12	Ohio	153*	19*
Georgia	173	14	Oklahoma	102	20
Idaho	18	8	Oregon	45†	9†
Indiana	61	7	Pennsylvania	102‡	5‡
Iowa	99	19	Rhode Island	24	30
Kansas	34	7	South Carolina	96*	18*
Kentucky	90	12	South Dakota	53	34
Louisiana	73	19	Tennessee	82	NR
Maine	46	35	Texas	566*	36*
Maryland	140‡	21‡	Vermont	25	33
Massachusetts	93	18	Virginia	190	26
Michigan	384	22	Washington	98*	31*
Minnesota	115	23	West Virginia	101	31
Mississippi	46	12	Wisconsin	117	11
Missouri	156*	21*	Wyoming	20	17

*Not Statewide Figure
†Estimate
‡Drivers involved in Fatals

Accidents of All Types Involving Drinking Drivers

During 1955 in 44 States and the District of Columbia

State	Number Involving Drinking Drivers	Percentage of all Traffic Accidents	State	Number Involving Drinking Drivers	Percentage of all Traffic Accidents
Alabama	2,114	20	Nevada	64	NR
Arizona	905	21	New Hampshire	175	NR
Arkansas	600	14	New Jersey	1,020	10
California	17,533	22	New Mexico	850	8
Colorado	5,255‡	8‡	New York	1,324*	1*
Connecticut	994	3	North Carolina	7,654	17
Delaware	1,419*	25*	North Dakota	725	9
District of Columbia	1,779‡	9‡	Ohio	4,652*	13*
Florida	10,116	13	Oklahoma	2,766	8
Georgia	2,820	9	Oregon	2,229†	4†
Idaho	1,104	4	Pennsylvania	5,488‡	2‡
Indiana	4,513	5	Rhode Island	364	3
Iowa	1,838	NR	South Carolina	2,103*	16*
Kansas	1,160	5	South Dakota	659	10
Kentucky	2,215	8	Tennessee	1,438	5
Louisiana	1,794	13	Texas	7,545*	17*
Maine	1,110	14	Vermont	551	5
Maryland	1,966‡	NR	Virginia	9,569	14
Massachusetts	1,913	3	Washington	1,263*	5*
Michigan	4,740	NR	West Virginia	1,349	25
Minnesota	5,272	10	Wisconsin	2,513	3
Mississippi	890	10	Wyoming	338	4
Missouri	3,454*	20*			

*Not Statewide Figure
†Estimate
‡Drivers involved in Fatals

. . . Statistics "finger" drivers who had been drinking

than the percentage of traffic accidents of all types involving drinking drivers. Since there are several bodily injury and property damage accidents for every fatal accident, one might conclude that drinking drivers tend to kill rather than to produce minor accidents. Although there may be some logical reasoning behind this line of thought, it must be observed that motor vehicle records for bodily injury and property damage accidents are not as complete as the record for fatals. In general, fatal traffic accidents are more carefully investigated and thus more likely to reveal the fact that a driver had been drinking.

Fatal Accidents Involving Drinking Pedestrians

The survey showed that according to available motor vehicle records, a total of only 813 fatal traffic accidents involved drinking pedestrians during 1955 in 41 states and the District of Columbia. This low number indicates a likely need for more thorough investigation in this area.

Variation Among State Reports

Examination of the table "Fatal Accidents Involving Drinking Drivers" shows that individual reported percentages of fatal accidents involving drinking drivers in states varied from one to 50 per cent. This wide variation indicates that either drivers seldom drink in some states or that motor vehicle records do not reveal the actual situation. Many officials from states reporting low percentages believed that the latter is a more logical explanation. It is entirely within the realm of possibility that a high as 50 per cent of all fatal traffic accidents have involved a drinking driver.

Independent Research

Results of many independent investigations have also shown that figures on the extent of the problem as available from motor vehicle records in most states are conservative to say the least.

Between 1937 and 1949, a sample of blood was taken from victims of fatal traffic accidents in Cleveland, Ohio to determine whether alcohol was present. Doctor S. R. Gerber has reported that from 1937 to 1940, tests showed that 54 per cent of those examined had some percentage of alcohol in the blood. From 1941 to 1945, 51 per cent had been drinking. And, the annual record between 1945 and 1949 revealed 51 per cent, 57 per cent, 49 per cent, 38 per cent, and 41 respectively.

Results of the Cleveland investigation are not out of line with other studies. In San Francisco, a study found that drivers in 22 out of 61 fatal accidents had been drinking; in Kansas City, 9 out of 31 tested involved alcohol; in Atlanta, 10 out of 36; in New Orleans, 20 out of 53; in Los Angeles, 194 out of 523; in Kentucky, 117 out of 506.

Alcohol as a Causative Factor

Admitting that as high as 50 per cent of fatal accidents may involve drinking drivers, the skeptic may conclude that this high percentage does not show that alcohol was a major contributing factor; but, rather, an indication that many drivers were drinking. And, unfortunately, few investigations in this area have revealed the percentage of drinking drivers who have been successful in avoiding traffic accidents.

The skeptic's theory is blasted, however, by the results of a study made in Toronto, Canada between December 1951 and November 1952. According to a report presented to the Second International Conference on Alcohol and Road Traffic (September 1953) prepared by representatives from the University of Toronto and the Attorney-General's Department of Ontario, special traffic police and research workers investigated as many traffic accidents in the Toronto area as was possible. The following excerpts from the above report describes the nature of the study and the conclusions reached:

". . . for each driver involved in an accident 4 or more non-accident drivers passing the scene of the accident in cars of the same vintage at approximately the same time, provided breath samples with the understanding that such samples were for research purposes only. These breath samples from the drivers involved in the accident were placed in charge of the research worker from the Department of Pharmacology who recorded pertinent data at the time.

". . . it was thus made possible to collect samples rapidly at the scene of accident under similar conditions from non-accident and accident drivers, to transport them rapidly to the laboratory to analyze them in the Harger Drunkometer or the Alcometer before any appreciable loss of alcohol occurred . . . in this study, the blood alcohol concentrations in 423 motor car drivers involved in accidents, were compared with the blood alcohol concentrations in 2,015 non-accident drivers operating under driving conditions as nearly alike as possible. The arrangement of the study was such that the data allows an estimation, statistically valid, of the hazards associated with various ranges of concentration of alcohol in the blood of motor car drivers . . . three conclusions on the relationship between the hazard of accident and the ranges of alcohol concentrations in the blood of motor car operators are as follows:

1. **The hazard is significant when the blood alcohol concentration is above 0.10 per cent.**
2. **In the range, 0.10-0.15 per cent blood alcohol concentration, the hazard of accident is 2.5 times that when the concentration of alcohol in the blood is less than 0.05 per cent.**
3. **This hazard of accident when blood alcohol concentrations are above 0.15 per cent is approximately 10.**

". . . The practical viewpoint obtained from this survey is that small amounts of alcohol—a cocktail, a bottle of beer—taken by the average person in an hour gives an alcoholic level in the blood which does not appear to impair driving ability in most persons. If, however, 4 to 8 cocktails or bottles of beer are consumed in about an hour's time, the alcohol content of the blood will lie in the range of 0.10—0.15 per cent. The statistician has calculated that the hazard of accidents is approximately 3 times greater to drivers in this range than to drivers who are sober when all are operating under identical driving conditions. If sufficient alcohol is consumed—8 drinks of whisky, 8 cocktails or bottles of beer —in a relatively short time, an hour

. . . Records do not show whole picture

or so, then the blood concentration will be above 0.15 per cent; the hazard of accident to drivers in this state is tenfold instead of 3. . . ."

A more complete breakdown of the data obtained in the Toronto study is shown in the following table:

The Accident Hazard Associated With Various Concentrations of Alcohol

Percentage of Alcohol in Blood	Accident Drivers Number	% of Group	Non-Accident Drivers Number	% of Group	Ratio of Percentage Accident to Non-Accident Drivers	Hazard
0.0 up to 0.05	328	77.5	1,839	91.3	0.85	1.0
0.05 up to 0.10	30	7.1	109	5.4	1.31	1.5
0.10 up to 0.15	17	4.0	39	1.9	2.10	2.5
0.15 and over	48	11.3	28	1.4	8.10	9.7
	423		2,015			

Motor vehicle records in most states do not reveal the true seriousness of the problem. Nevertheless, records in some states and results of independent investigations provide definite evidence that the use of alcohol by drivers plays a major role in causing death, injury and property damage on streets and highways.

Observations Based on Questionnaire Survey of State Officials

Degree of Offense

According to the survey of state traffic officials, "driving under the influence" is considered a mere violation only in 2 of 45 states and the District of Columbia. In one state, Missouri, a conviction is considered a felony under all circumstances. In another state, California, a conviction is considered a felony when a person is in-

Fatal Accidents Involving Drinking Pedestrians

In 48 States and the District of Columbia

State	Number Involving Drinking Pedestrians	Percentage of Fatal Accidents	State	Number Involving Drinking Pedestrians	Percentage of Fatal Accidents
Arizona	9	5	Montana	4	2
California	91	3	New Hampshire	2	NR
Colorado	6‡	2‡	New Mexico	6	11
Connecticut	12	4	New York	15*	1*
Delaware	3*	3‡	North Carolina	26	3
District of Columbia	7‡	17‡	North Dakota	0	0
Florida	13	1	Ohio	8*	NR
Georgia	4	1	Oklahoma	7	1
Idaho	5	15	Oregon	7†	1†
Indiana	2	1	Pennsylvania	252‡	3‡
Iowa	1	NR	Rhode Island	3	4
Kansas	1	NR	South Carolina	16*	16*
Kentucky	71	10	South Dakota	0	0
Louisiana	13	3	Tennessee	5	11
Maine	9	7	Texas	23*	1*
Maryland	31‡	NR	Vermont	2	3
Massachusetts	16	3	Virginia	24	3
Michigan	44	2	Washington	13*	4*
Minnesota	20	4	West Virginia	10	3
Mississippi	6	2	Wisconsin	21	NR
Missouri	3*	4‡	Wyoming	2	17

*Not Statewide Figure
†Estimate
‡Pedestrians in Fatal Accidents

Status of Mandatory and Discretionary Suspension of Driving Privilege for Driving Under Influence of Intoxicating Liquor

In 45 States and the District of Columbia

State	First Offense	Second Offense	Third Offense	State	First Offense	Second Offense	Third Offense
Alabama	1 yr.	1 yr.	1 yr.	Nebraska	6 mos.	1 yr.	1 yr.
Arizona	None	D*	D*	Nevada	10 days	10 days	10 days
California	D*	1 yr.	3 yrs.	New Hampshire	2 mos.	3 yrs.	3 yrs.
Colorado	D*	1 yr.	1 yr.	New Jersey	2 yrs.	10 yrs.	10 yrs.
Connecticut	1 yr.	5 yrs.	5 yrs.	New Mexico	1 yr.	1 yr.	1 yr.
Delaware	1 yr.	1 yr.	1 yr.	New York	6 mos.	6 mos.	6 mos.
Dist. of Col.	6 mos.	6 mos.	6 mos.	North Carolina	1 yr.	3 yrs.	5 yrs.
Florida	1 yr.	1 yr.	1 yr.	North Dakota	D*	1 mo.	1 mo.
Georgia	3 yrs.	3 yrs.	Indef.	Ohio	3 yrs.	3 yrs.	3 yrs.
Idaho	1 yr.	1 yr.	1 yr.	Oklahoma	1 yr.	1 yr.	1 yr.
Indiana	3 mos.	6 mos.	1 yr.	Oregon	3 mos.	1 yr.	3 yrs.
Iowa	2 mos.	2 mos.	2 mos.	Pennsylvania	1 yr.	1 yr.	Perm.
Kansas	6 mos.	1 yr.	1 yr.	Rhode Island	1 yr.	1 yr.	1 yr.
Kentucky	6 mos.	1 yr.	2 yrs.	South Carolina	6 mos.	1 yr.	3 yrs.
Louisiana	2 mos.	1 yr.	None	South Dakota	None	None	None
Maine	1 yr.	3 yrs.	6 yrs.	Tennessee	6 mos.	1 yr.	1 yr.
Maryland	3 mos.	3 mos.	3 mos.	Texas	6 mos.	1 yr.	1 yr.
Massachusetts	1 yr.	5 yrs.	5 yrs.	Vermont	1 yr.	6 yrs.	Perm.
Michigan	3 mos.	3 mos.	3 mos.	Virginia	1 yr.	3 yrs.	3 yrs.
Minnesota	Indef.	3 mos.	3 mos.	Washington	1 mo.	2 mos.	1 yr.
Mississippi	1 yr.	1 yr.	1 yr.	West Virginia	6 mos.	10 yrs.	10 yrs.
Missouri	1 yr.	1 yr.	1 yr.	Wisconsin	1 yr.	1 yr.	1 yr.
Montana	1 yr.	1 yr.	1 yr.	Wyoming	1 mo.	4 mos.	1 yr.

*Discretionary

. . . need uniformity of degree of offense

jured in an accident caused by the defendant. In still another, Maine, a conviction is considered a felony when damage from an accident is "of a high or aggravated nature." In four states, Idaho, Indiana, Oklahoma, and Texas, a conviction is considered a misdemeanor for the first offense and a felony for subsequent offenses. In three states, Louisiana, South Dakota and West Virginia, conviction is considered a misdemeanor for the first two offenses and becomes a felony for the third and subsequent offenses. In the remainder of states, with the exception of those not reporting, conviction is considered a misdemeanor under all circumstances.

These facts indicate the need for uniformity of degree of offense.

Status of Mandatory and Discretionary Suspension of Driving Privilege

Legislation or Motor Vehicle Department rulings back mandatory suspension of the driving privilege upon conviction for the first offense of "driving under the influence of liquor" in 40 states and the District of Columbia of the 45 states reporting on this item. The length of the mandatory suspension period varies from "indefinitely" in Minnesota to three years in Georgia and Ohio. The most common period of suspension is one year. In 3 of the 5 reporting states not having mandatory suspension for the first offense, discretionary powers are allowed.

Upon conviction for both the second and third offenses, of the 45 states reporting, every state has a mandatory suspension period with the exception of Arizona. Arizona provides for a discretionary suspension.

Exact periods of mandatory revocation or suspension in the various states are shown in a following table.

Existing Legislation and Official Opinions Concerning Maximum and Minimum Penalties

In recording the maximum and minimum penalties provided by legislation upon conviction, for the first, second and third offenses of "driving under the influence" as reported by state officials, a considerable amount of interpretation was unavoidable which may

Degree of Offense for
Driving Under Influence of Intoxicating Liquor
In 45 States and the District of Columbia

State	Degree of Offense
Alabama	Misdemeanor
Arizona	Misdemeanor
California	Misdemeanor. If injury, a Felony
Colorado	Misdemeanor
Connecticut	Misdemeanor
Delaware	Misdemeanor
District of Columbia	Misdemeanor
Florida	Misdemeanor
Georgia	Misdemeanor
Idaho	1st offense Mis., Subs. offenses a Felony
Indiana	1st offense Mis., Subs. offenses a Felony
Iowa	1st offense Mis., Subs. offenses a Felony
Kansas	Misdemeanor
Kentucky	Misdemeanor
Louisiana	1st offense Mis., Subs. offenses a Felony
Maine	Mis. unless of aggravated nature
Maryland	Misdemeanor
Massachusetts	Misdemeanor
Michigan	Misdemeanor
Minnesota	Misdemeanor
Mississippi	Misdemeanor
Missouri	Felony
Montana	Misdemeanor
Nebraska	Misdemeanor
Nevada	Misdemeanor
New Hampshire	Misdemeanor
New Jersey	Violation
New Mexico	Violation
New York	Misdemeanor
North Carolina	Misdemeanor
North Dakota	Misdemeanor
Ohio	Misdemeanor
Oklahoma	1st & 2nd offense Mis., Subs. offenses a Felony
Oregon	Misdemeanor
Pennsylvania	Misdemeanor
Rhode Island	Misdemeanor
South Carolina	Misdemeanor
South Dakota	1st offense Mis., Subs. offenses a Felony
Tennessee	Misdemeanor
Texas	1st offense Mis., Subsequent offenses a Felony
Vermont	Misdemeanor
Virginia	Misdemeanor
Washington	Misdemeanor
West Virginia	1st & 2nd offense Mis., Subs. offenses a Felony
Wisconsin	Misdemeanor
Wyoming	Misdemeanor

. . . 18 states want jail sentence for first offense

Minimum and Maximum Penalties Provided for Driving Under Influence of Intoxicating Liquor Second Offense in 45 States and the District of Columbia

State	MINIMUM Fine	MINIMUM Withdrawal Driving Privilege	MINIMUM Jail	MAXIMUM Fine	MAXIMUM Withdrawal Driving Privilege	MAXIMUM Jail
Alabama	$100	1 yr.		$1000	1 yr.	1 yr.
Arizona	100			1000	Indef.	1 yr.
California	200	1 yr.		5000	1 yr.	5 yrs.
Colorado	100	1 yr.	3 mos.	1000	Indef.	1 yr.
Connecticut		5 yrs.	2 mos.		5 yrs.	1 yr.
Delaware	500	1 yr.		2000	1 yr.	1 yr. 6 mos.
Dist. of Col.		6 mos.		1000	6 mos.	1 yr.
Florida		1 yr.	10 days	500	1 yr.	6 mos.
Georgia	100	3 yrs.		200	3 yrs.	1 yr.
Idaho		1 yr.	2 yrs.		1 yr.	2 yrs.
Indiana	100	6 mos.	1 yr.	500	6 mos.	3 yrs.
Iowa	500	2 mos.		1000	Indef.	1 yr.
Kansas		1 yr.	3 mos.	500	1 yr.	1 yr.
Kentucky	100	1 yr.		500	1 yr.	6 mos.
Louisiana	125	1 yr.		1250	1 yr.	4 mos.
Maine	100	3 yrs.		1000	5 yrs.	3 yrs.
Maryland		3 mos.	6 mos.	1000	Indef.	2 yrs.
Massachusetts	35	5 yrs.		1000	10 yrs.	2 yrs.
Michigan	50	3 mos.		1000	Perm.	1 yr.
Minnesota	10	3 mos.	1 mo.	100	1 yr.	3 mos.
Mississippi	100	1 yr.	3 days	1000	1 yr.	3 days
Missouri		1 yr.		100	1 yr.	1 yr.
Montana	300	1 yr.	1 mo.	1000	1 yr.	1 yr.
Nebraska	300	1 yr.		300	1 yr.	3 mos.
Nevada	100	10 days		500	2 yrs.	Indef.
New Hampshire	100	3 yrs.	1 mo.	500	3 yrs.	6 mos.
New Jersey		10 yrs.	3 mos.		10 yrs.	3 mos.
New Mexico	100	1 yr.		1000	1 yr.	
New York	200	6 mos	2 mos.	2000	Perm.	2 yrs.
North Carolina	200	3 yrs.		No limit	3 yrs.	No limit
North Dakota		1 mo.	3 mos.	1000	Indef.	1 yr.
Ohio		3 yrs.	3 days	500	3 yrs.	6 mos.
Oklahoma		1 yr.	1 yr.	1000	1 yr.	5 yrs.
Oregon		1 yr.		1000	1 yr.	1 yr.
Pennsylvania	100	1 yr.		500	1 yr.	3 yrs.
Rhode Island		1 yr.		500	Perm.	1 yr.
South Carolina	100	1 yr.		1000	1 yr.	1 yr.
South Dakota	100			500	1 yr.	6 mos.
Tennessee	10	1 yr.		500	1 yr.	1 yr.
Texas	100	1 yr.	10 days	5000	1 yr.	5 yrs.
Vermont		6 yrs.	2 mos.	500	6 yrs.	2 yrs.
Virginia	100	3 yrs.		1000	3 yrs.	1 yr.
Washington	100	2 mos.	1 mo.	1000	2 mos.	1 yr.
West Virginia		10 yrs.	6 mos.		10 yrs.	1 yr.
Wisconsin		1 yr.	5 days	200	1 yr.	1 yr.
Wyoming	100	4 mos.		100	4 mos.	1 mo.

detract from the complete accuracy of the various tables. Nevertheless, the tables show that most states provide for severe maximum penalties, yet the absolute minimum in many states may be considered a mere token of punishment.

According to the information reported in the survey, it is possible for a driver to be convicted and receive no penalty other than court costs in several states. In a number of states, possible different interpretations of the existing legislation could conceivably permit the issuance of suspended sentences by courts.

In regard to opinions of state traffic officials as to penalties to be levied upon conviction of "driving under the influence," most seem to feel that mandatory minimum penalties should be provided for the first, second, and third offenses. It is obvious that the popular opinion is for suspension of the driving privilege rather than a large fine (considered too easy) and jail (considered too harsh). On the other hand, it is interesting to note that officials from 18 states, out of 41 states and the District of Columbia reporting, felt that the offense was serious enough to warrant a mandatory jail sentence for the first offense. An increasingly larger number felt that jail is suitable for the second and third offenses.

Difficulty in Obtaining Convictions

State traffic officials feel that the widespread difficulty in obtaining convictions for persons obviously guilty of driving while under the influence of liquor is a major obstacle to effective control. According to the survey, such difficulty is encountered in 30 of 43 states and the District of Columbia reporting.

One of the factors that may help bring about this situation is a lack in the development and statewide use of a standard procedure for preparing cases for trial. Such a standard procedure has not been developed in over 50 per cent of the states. And, of the 20 states and the District reporting the existence of a uniform procedure, only 9 report that it is used on a statewide basis. These facts most cer-

. . . 34 states consider chemical tests legal

tainly have a bearing on low conviction rates.

Response to another question in the survey resulted in an expression by 30 of 43 state officials that existing legislation was insufficient to deal with the problem. Other reasons why difficulty is encountered in convicting the guilty, in order of frequency of mention by state officials, are as follows: (1) jury attitude of sympathy for violators, (2) penalty causes economic hardship on violator's family, (3) lenient judges, (4) violators are often sober, upstanding citizens when they appear for trial, (5) lack of legislation authorizing chemical tests for intoxication, (6) evidence of guilt not properly presented in court, (7) medical profession reluctant to cooperate, (8) penalty for first offense too heavy, and (9) chemical tests authorized but not being used.

A combination of these factors explains why (1) in more than 50 per cent of the states there is a tendency to reduce the charge to a less serious violation and (2) in most every state convictions are hard to obtain.

Use of Chemical Test Evidence

According to reports from 45 states and the District of Columbia, chemical tests for intoxication are considered legal in 34 states and the District. In many of these states, chemical test legislation has been established in accordance with Act V of the Uniform Vehicle Code. In others, such legislation has not been established; but chemical tests are said to be considered legal until proved otherwise. 26 states and the District of Columbia reported that chemical tests are used on a statewide basis. Here again, there is a possibility that an many urban areas within these states, chemical tests are not used. It may be assumed that states reporting the use of chemical tests for intoxication on a statewide basis used the tests in cases handled by the state police agency responsible for highway safety.

According to the survey, in all but two of the 45 states and the District of Columbia, a driver may be convicted of "driving under the influence" on evidence presented by witnesses

Minimum and Maximum Penalties Provided for Driving Under Influence of Intoxicating Liquor First Offense in 45 States and the District of Columbia

State	MINIMUM Fine	MINIMUM Withdrawal Driving Privilege	MINIMUM Jail	MAXIMUM Fine	MAXIMUM Withdrawal Driving Privilege	MAXIMUM Jail
Alabama	$100	1 yr.		$1000	1 yr.	1 yr.
Arizona	100			300		6 mos.
California	50			5000		5 yrs.
Colorado	100			1000	1 yr.	1 yr.
Connecticut	100	1 yr.		500	1 yr.	6 mos.
Delaware	200	1 yr.		1000	1 yr.	6 mos.
Dist. of Col.		6 mos.		500	6 mos.	6 mos.
Florida	25	1 yr.		500	1 yr.	6 mos.
Georgia	100	3 yrs.		200	3 yrs.	1 yr.
Idaho	100	1 yr.		300	1 yr.	6 mos.
Indiana	10	3 mos.		100	3 mos.	6 mos.
Iowa	300	2 mos.		1000	Indef.	1 yr.
Kansas	100	6 mos.		500	6 mos.	1 yr.
Kentucky	100	6 mos.		500	6 mos.	
Louisiana	125	2 mos.		400	2 mos.	8 mos.
Maine	100	1 yr.		1000	2 yrs.	2 yrs.
Maryland	100	3 mos.		1000	1 yr.	1 yr.
Massachusetts	35	1 yr.		1000	10 yrs.	2 yrs.
Michigan	50	3 mos.		100	2 yrs.	3 mos.
Minnesota		Indef.		100	Indef.	3 mos.
Mississippi	100	1 yr.		1000	1 yr.	
Missouri		1 yr.		100	1 yr.	1 yr.
Montana	50	1 yr.		500	1 yr.	6 mos.
Nebraska	100	6 mos.		100	6 mos.	3 mos.
Nevada	25	10 days		500	1 yr.	6 mos.
New Hampshire		2 mos.		500	2 yrs.	6 mos.
New Jersey	200	2 yrs.		500	2 yrs.	
New Mexico	100	1 yr.		100	1 yr.	
New York		6 mos.		100	6 mos.	1 mo.
North Carolina	100	1 yr.		No limit	1 yr.	No limit
North Dakota	25		1 mo.	500	1 yr.	1 yr.
Ohio		3 yrs.	3 days	500	3 yrs.	6 mos.
Oklahoma	1	1 yr.		500	1 yr.	1 yr.
Oregon		3 mos.		1000	3 mos.	1 yr.
Pennsylvania	100	1 yr.		500	1 yr.	3 yrs.
Rhode Island		1 yr.		500	Perm.	1 yr.
South Carolina	50	6 mos.		100	6 mos.	1 mo.
South Dakota	50			300	1 yr.	3 mos.
Tennessee	10	6 mos.		500	6 mos.	1 yr.
Texas	50	6 mos.		500	6 mos.	5 yrs.
Vermont	50	1 yr.		500	1 yr.	2 yrs.
Virginia	100	1 yr.		1000	1 yr.	6 mos.
Washington	50	1 mo.		500	1 mo.	1 yr.
West Virginia	50	6 mos.		100	6 mos.	6 mos.
Wisconsin		1 yr.		200	1 yr.	6 mos.
Wyoming	100	1 mo.		100	1 mo.	1 mo.

. . . implied consent new weapon against drinking drivers

alone. In one of these two states, it was reported that chemical test evidence is required and, in the other, the allegation must be verified by a doctor. Reports from the 45 states also show that guilt may be proved by results of chemical tests alone in 25 states and the District of Columbia. But it should be pointed out that, in states accepting such evidence without other proof, the practice is seldom statewide. Moreover, in many of these states, the acceptance of chemical test results without other supporting evidence is not backed by specific mention in state legislation.

Officials from 36 states and the District of Columbia feel that chemical tests are the best way to determine guilt or innocence of a charge of "driving under the influence of liquor." Only 6 states of the 42 reporting answered "no" to this question. And, with one exception, these 6 state officials feel that the use of chemical tests are invaluable, but point out that this evidence should be supported by observation of driver behavior or other clinical evidence. Comments from several of the 37 officials answering "yes" shows wide support to the idea that test results should be accompanied by other proof.

Thus, state traffic officials are almost unanimously in favor of the use of chemical tests as evidence of guilt or innocence. It may be observed that chemical test evidence often makes the difference between successful prosecution of the guilty and a case which has to be dismissed. Chemical test results substantiate the evidence presented by witnesses and police officers.

Chemicals tests have been generally accepted by courts when certain procedures have been followed. Some reasons why chemical test results have not been accepted by courts in specific areas are as follows:

1. Consent was not obtained from the accused for obtaining a specimen of blood, breath or urine.
2. Unqualified persons obtained or processed such a specimen.
3. Accepted techniques where not followed in obtaining or processing the specimen.
4. Care was not taken to absolutely identify the specimen as that taken from the accused.
5. Witnesses were not present during the obtaining and processing of a specimen, or such witnesses were not available to testify in court.
6. Expert witnesses, physicians or other qualified persons, were not available to authoritatively interpret the meaning of test results to the court.

In the section authorizing the admission of chemical test results as evidence in court, Act V of the Uniform Vehicle Code does permit a small amount of alcohol to be present, makes an allowance for individual tolerance, and establishes a liberal maximum beyond which a person with even a super-tolerance must be "under the influence" to some degree. This section provides that:

1. "If there was at that time 0.05 per cent or less by weight of alcohol in the defendant's blood, it shall be presumed that the defendant was not under the influence of intoxicating liquor;
2. "If there was at that time in excess of 0.05 per cent but less than 0.15 per cent by weight of alcohol in the defendant's blood, such fact shall not give rise to any presumption that the defendant was or was not under the influence of intoxicating liquor, but such fact may be considered with other competing evidence in determining the guilt or innocence of the defendant;
3. "If there was at the time 0.15 per cent or more by weight of alcohol in the defendant's blood, it shall be presumed that the defendant was under the influence of intoxicating liquor."

The rapid rise in the use of chemical tests and the resulting increased conviction rates brings up the question as to whether a specimen should be taken without the consent of the driver suspected of being intoxicated while behind-the-wheel. Not one state, at present, has enacted legislation which absolutely forces the suspect to submit to a chemical test. New York, however, has the distinction of being the first state to place into effect a law which comes close to compulsory submission. This law, passed several years ago, has been commonly referred to as an "implied consent" law. Under this statute a driver who refuses to submit to a chemical test automatically loses his operator's license.

When given a three-way choice as to provisions of desired legislation for chemical tests 34 states and the District of Columbia responded. Of these, officials from 9 states expressed the opinion that the accused should be required to submit to a chemical test, officials from 21 states and the District of Columbia though that legislation should provide for "implied consent," and only 4 indicated a preference for voluntary use of chemical tests.

Steps Needed to Control the Menace

"What steps are needed to make the public more aware of the seriousness of the drinking driver problem in order to bring about acceptance of control measures?" Most every state traffic official feels that well-planned public education programs, making use of all types of public information media as well as school facilities, will fill the primary need. Other steps mentioned depend directly upon the effectiveness of such public education campaigns. These steps included such things as better support from courts, more intense enforcement, better legislation, more severe penalties for the guilty, establishment of traffic courts, improved traffic accident investigation procedures, speed-up of trials, and more research.

Departing from the opinions of state officials, let us consider the work of representatives from the medical profession. In May 1956, leading physicians from the several states surrounding New York City met at Bellevue Medical Center to discuss the "Medical Aspects of Motor Vehicle Accident Prevention." A section devoting attention to the "Drug and Chemical" aspects of traffic accident prevention made some interesting observations. In regard to treatment of drinking drivers, these recommendations were made:

1. "Every driver involved in a traffic accident or arrested for a law violation be given a chemical test for intoxication.

. . . there is need for action now

2. "On refusal to submit to such tests or when alcohol is detected, a mark will be placed on the driver's record.

3. "A driver's operators license be indefinitely suspended when a second accident occurs involving the drinking driver.

4. "The drinking habits of second offense drivers be investigated to determine whether the license should be returned."

The Future

Since the reasons why normally intelligent human beings drive while under the influence of alcohol are not simple and easily understood, the solution to the alcohol-traffic problem will not come about in a short time. To achieve a reasonable degree of success, it will be necessary for state officials to constantly study the problem without letup.

In the meantime, the traffic safety official who is sincerely interested in eliminating today's traffic safety delinquent—the drinking driver—must do something more than conduct research studies. There is a need for action *now!* State and local officials must buckle down to an immediate program aimed toward achieving an ultimate objective of total abstinence when behind-the-wheel. A continuous and thoroughly executed public education campaign is the first step. Such a well-planned campaign should be so designed that the result should be:

1. A public awareness that even small amounts of alcohol seriously impairs driving ability.

2. The enactment of uniform legislation which authorizes statewide use of chemical tests for intoxication.

3. The development and application of uniform procedures for preparing drinking driver cases for trial.

4. More intense enforcement.

5. Better support from the courts of the nation.

Legislation, education and enforcement must have as an aim absolute sobriety—no consumption of alcoholic intoxicants—when a person accepts the privilege of operating a motor vehicle in traffic.

Minimum and Maximum Penalties Provided for Driving Under Influence of Intoxicating Liquors Third Offense in 45 States and the District of Columbia

State	MINIMUM Fine	MINIMUM Withdrawal Driving Privilege	MINIMUM Jail	MAXIMUM Fine	MAXIMUM Withdrawal Driving Privilege	MAXIMUM Jail
Alabama	$100	1 yr.		$1000	1 yr.	1 yr.
Arizona	100			1000	Indef.	1 yr.
California	200	3 yrs.		5000	3 yrs.	5 yrs.
Colorado	100	1 yr.	3 mos.	1000	Indef.	1 yr.
Connecticut		5 yrs.	6 mos.		5 yrs.	1 yr.
Delaware	500	1 yr.		2000	1 yr.	1 yr. 6 mos.
Dist. of Col.		6 mos.		1000	6 mos.	1 yr.
Florida		1 yr.	10 days	500	1 yr.	6 mos.
Georgia		Indef.	3 mos.	1000	Perm.	1 yr.
Idaho		1 yr.	2 yrs.		1 yr.	2 yrs.
Indiana	100	1 yr.	1 yr.	500	1 yr.	3 yrs.
Iowa		2 mos.	Indef.		Indef.	3 yrs.
Kansas		1 yr.	3 mos.	500	1 yr.	1 yr.
Kentucky	100	2 yrs.		500	2 yrs.	6 mos.
Louisiana			1 yr.			5 yrs.
Maine	100	6 yrs.		1000	5 yrs.	3 yrs.
Maryland		3 mos.	6 mos.	1000	Indef.	2 yrs.
Massachusetts	35	5 yrs.		1000	10 yrs.	2 yrs.
Michigan	50	3 mos.		1000	Perm.	1 yr.
Minnesota	10	3 mos.	1 mo.	100	1 yr.	3 mos.
Mississippi	100	1 yr.	3 days	1000	1 yr.	3 days
Missouri		1 yr.		100	1 yr.	1 yr.
Montana	300	1 yr.	1 mo.	1000	1 yr.	1 yr.
Nebraska		1 yr.	1 yr.		1 yr.	3 yrs.
Nevada	100	10 days		500	2 yrs.	Indef.
New Hampshire	100	3 yrs.	1 mo.	500	3 yrs.	6 mos.
New Jersey		10 yrs.	3 mos.		10 yrs.	3 mos.
New Mexico	100	1 yr.		1000	1 yr.	
New York	200	6 mos.	2 mos.	2000	Perm.	2 yrs.
North Carolina	500	5 yrs.		No limit	Perm.	No limit
North Dakota		1 mo.	3 mos.	1000	Indef.	1 yr.
Ohio		3 yrs.	3 days	500	3 yrs.	6 mos.
Oklahoma		1 yr.	1 yr.	1000	1 yr.	5 yrs.
Oregon		3 yrs.		1000	3 yrs.	1 yr.
Pennsylvania	100	Perm.		500	Perm.	3 yrs.
Rhode Island		1 yr.		500	Perm.	1 yr.
South Carolina	3000	3 yrs.		3000	3 yrs.	3 yrs.
South Dakota		1 yr.	1 yr.		1 yr.	3 yrs.
Tennessee	50	1 yr.	1 mo.	1000	10 yrs.	1 yr.
Texas	100	1 yr.		5000	1 yr.	5 yrs.
Vermont		Perm.	2 mos.	500	Perm.	2 yrs.
Virginia	100	3 yrs.		1000	3 yrs.	1 yr.
Washington	100	1 yr.	1 mo.	1000	1 yr.	1 yr.
West Virginia		10 yrs.	1 yr.		10 yrs.	3 yrs.
Wisconsin		1 yr.	5 days	200	1 yr.	1 yr.
Wyoming	100			100	1 yr.	2 mos.

QUESTIONNAIRE

INFLUENCE OF ALCOHOL ON THE TRAFFIC PROBLEM

(Please answer these questions from your state's motor vehicle accident records and other available state data)

1. In 1955 how many *fatal* accidents in your state involved drinking drivers? _____ fatal accidents
   What percentage is this of all fatal accidents? _____ %
2. In 1955 how many *fatal* accidents in your state involved drinking pedestrians? _____ fatal accidents
   What percentage is this of all fatal accidents? _____ %
3. In 1955 how many accidents of *all* types (including fatals) involved drinking drivers? _____ accidents
   What percentage is this of all accidents? _____ %
4. What is the general rule-of-thumb meaning of "driving under the influence of intoxicating liquors" in your state?

_____

_____

_____

Must the allegation of "driving under the influence" be verified by a doctor? Yes ☐ No ☐
May it be proved by witnesses alone? Yes ☐ No ☐
May it be proved by chemical tests alone? Yes ☐ No ☐

5. In 1955 how many operators in your state were convicted of "driving under the influence"?
   (a) IN ACCIDENT CASES? _____ operators
   (b) IN NON-ACCIDENT CASES? _____ operators
6. In 1955 how many operators were prosecuted for "driving under the influence" but not convicted?
   _____ operators
7. In 1955 what estimated percentage of drinking driver cases were prosecuted by a duly constituted prosecuting official of the jurisdiction in which trial was held? _____ %
8. What degree of offense is "driving under the influence" in your state?
   ☐ Felony ☐ Misdemeanor ☐ Violation
9. Have standardized procedures for preparing drinking driver cases for trial been developed for use in your state?
   ☐ Yes ☐ No
   If "yes" is this procedure used on a statewide basis? _____
10. Is difficulty often encountered in obtaining convictions for operators who have ticketed for "driving under the influence"? ☐ Yes ☐ No
    If "yes," is there a tendency to reduce the charge to a less serious violation?
    ☐ Yes ☐ No
11. If difficulty is encountered in obtaining convictions, what factors bring about this situation?
    - ☐ Penalty for first offense is too heavy.
    - ☐ Violators are often sober, upstanding citizens when they appear for trial.
    - ☐ Evidence of guilt not properly presented in court.
    - ☐ Lenient judges.
    - ☐ Penalty causes economic hardship on violator's family.
    - ☐ Lack of legislation authorizing chemical tests for intoxication.
    - ☐ Chemical tests authorized but not being used.
    - ☐ Medical profession reluctant to cooperate.
    - ☐ Jury attitude of sympathy for violators.
    - ☐ Other. Explain _____
12. What are the minimum and maximum penalties provided by your state legislation for conviction for "driving under the influence"?

    FIRST OFFENSE
    Minimum _____
    Maximum _____

    SECOND OFFENSE
    Minimum _____
    Maximum _____

    THIRD OFFENSE
    Minimum _____
    Maximum _____

13. Does existing legislation provide for *mandatory* suspension of driving privilege upon conviction for "driving under the influence"?

FIRST OFFENSE:	☐ Yes	☐ No	Period of Suspension_____
SECOND OFFENSE:	☐ Yes	☐ No	Period of Suspension_____
THIRD OFFENSE:	☐ Yes	☐ No	Period of Suspension_____

14. Does existing legislation provide for discretionary suspension of driving privilege upon conviction for "driving under the influence"?

FIRST OFFENSE:	☐ Yes	☐ No
SECOND OFFENSE:	☐ Yes	☐ No
THIRD OFFENSE:	☐ Yes	☐ No

15. Are chemical tests for intoxication legal in your state? ☐ Yes ☐ No
If "yes," is chemical test evidence admissible in the courts on a limited basis *or* statewide basis? _____

What kind of chemical tests are used?_____

(Won't you please state your OPINION on the following questions)

1. In your opinion, what percentage of traffic accidents in your state in 1955 involved operators who had been drinking enough to impair their normal driving ability? _____%
2. If chemical tests for intoxication are *not* legal in your state, do you think they should be legalized and that courts should admit chemical test evidence? ☐ Yes ☐ No

   Which of the following provisions should the legislation include?
   - ☐ Require the accused to submit to a test.
   - ☐ Provide for "implied consent" (provide, upon hearing, for license suspension or revocation for refusal to submit to test).
   - ☐ Provide for voluntary submission to the test by the accused.
3. In your opinion, are chemical tests for intoxication the best way to determine guilt or innocence?
   ☐ Yes ☐ No

   If "no," what do you think is the best way to determine guilt or innocence?

   WHY?_____
4. In your opinion, what is the strongest, most effective—yet practical—penalty for the convicted drinking driver?

   FIRST OFFENSE
   Minimum_____
   Maximum_____

   SECOND OFFENSE
   Minimum_____
   Maximum_____

   THIRD OFFENSE
   Minimum_____
   Maximum_____
5. Is existing legislation in your state sufficient to deal adequately with the drinking driver?
   ☐ Yes ☐ No

   NOTE: *Please submit copy of all applicable legislation and your standard accident report form as an attachment.*
6. What steps should be taken to make the public more aware of the seriousness of the drinking driver problem in order to bring about acceptance of statewide control measures?

Signed_____

Title or Position_____

YOUR COMMENTS

(If you care to comment additionally on the questionnaire or any aspect of the drinking driver problem, please feel free to do so.)

Seattle analyzes the relationship between

WEATHER IN FREQUENCY OF TRAFFIC CASUALTIES

(Compiled during October, November and December, 1954 and the entire Year of 1955)

By Dan Julian and Caroline M. Arwine

It has been observed by city officials, responsible for the control and regulation of vehicular traffic, that there seems to be a close relationship between local weather and the frequency of traffic casualties (accidents) in the City of Seattle. In order to test the extent and the consistency of this relationship, a study was devised to subject the interrelation between these two variables to systematic analysis.

For the purposes of this study it was assumed that, if all effective variables were known, deaths, injuries, and instances of property damage as functions of vehicular traffic could be expected to conform to a normal pattern of probability. To describe such incidents as accidents presupposes a condition of random chance that would contraindicate systematic study and observation. To describe them as casualties is consistent with the assumption that they are a normal function of traffic with causes that can be anticipated and controlled. For these reasons, the term casualty will be used in this study in preference to the term accident since it is more consistent with the methods and goals of this analysis.

Methods

The data forming the basis for this study was obtained from three major sources: volume data was obtained from the City Traffic Engineer's office; accident statistics from the Statistical Unit of the Seattle Police Department; and weather data from the Seattle Station of the U. S. Weather Bureau.

The daily volume of casualties was not sufficient to make hour by hour study practical, therefore the days were divided into intervals according to a general analysis of traffic function.

Week days were divided into five intervals that can be roughly classified as follows:

Table I

Weekday Traffic Intervals

1.	12 a.m. to 6:59 a.m.	Early morning
2.	7 a.m. to 8:59 a.m.	Going to work
3.	9 a.m. to 3:59 p.m.	Daytime shopping and commercial traffic
4.	4 p.m. to 5:59 p.m.	Returning from work
5.	6 p.m. to 11:59 p.m.	Evening shopping and leisure activities

These classifications cannot be considered exact or all inclusive but, with the exception of the early morning interval, they are dominated by the described activities. Intervals (2) and (4), the two peak periods of traffic, may normally be expected to show the greatest degree of consistency and predictability of any of the intervals, since they are generally subject to the greatest volume and least flexibility of any of the traffic activities. Interval (1) may be expected to show the least degree of consistency since it is lightest in volume and has no clearly delimited purpose.

Saturdays and Sundays were not considered to be classifiable in terms of a time-traffic function relationship. Therefore they were arbitrarily divided into four time intervals. These intervals are as follows:

Table II

Weekend Traffic Intervals

1.	12 a.m to 6:59 a.m.	
2.	7 a.m. to 11:59 a.m.	
3.	Noon to 5:59 p.m.	
4.	6 p.m. to 11:59 p.m.	

Business holidays were divided into time intervals in accordance with the day of the week upon which they fell, but the casualty norms applied were the same as those derived for Sundays.

Casualty norms for dry weather were derived separately for each of the 33 weekly time intervals on a monthly basis. In the original study which encompassed October, November, and December of 1954 and 1955, norms were established by averaging the number of traffic casualties by time interval, day of week, and month during those days of October and November of 1953 and 1954 without measurable precipitation. During December of 1953 and 1954 the number of days without precipitation was judged to be inadequate for the derivation of casualty norms. Since January was judged to be the most similar to December in weather and traffic conditions, the norms for December were derived from those days of December, 1953 and 1954, and January, 1954 and 1955, during which there was no measurable precipitation.

Dry weather norms for October, November, and December of 1955 were projected from those established for the same months of 1954. During the first nine months of

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. . . increased exposure to rain alerts driving public

1955, Seattle showed an average increase of 7 per cent in the frequency of traffic casualties as compared to the same time interval during 1954. To compensate for this trend the projected norms for the last three months of 1955 were established by increasing the norms for the same months of the previous year by 7 per cent. When the study was extended to encompass the entire year of 1955, norms for the first nine months were derived for each month by taking an average by time interval and by day of week for all dry days during the month following and the month preceding the month for which norms were being established, in addition to that month itself. For example, the norms for January, 1955, consist of the combined dry weather averages during December, 1954, January, and February, 1955.

The influence of precipitation upon the frequency of traffic casualties was determined by averaging the casualties during various conditions of precipitation by quarter of the year, weekdays versus holidays and weekends, and by interval of the day. The amount of rain during any specific time interval was classed as follows: light showers (trace to .009 inches per hour), showers (.01 inches to .049 inches per hour), rain (.05 inches or more per hour).

Under conditions of light and localized precipitation, whenever there was a substantial conflict between driver reports and official weather reports, the driver reports were granted preference since there is often a considerable variation between weather conditions as observed at the central weather station and weather conditions in other sections of the city. Therefore, for any time interval during which percipitation was officially recorded but was observed by less than 10 per cent of the traffic victims, the reported casualties were not included in the comparative evaluation. When more than 50 per cent of the drivers reported rain that was not officially recorded, the casualties that occurred during such intervals were treated in the comparative evaluation as having occurred under conditions of light showers.

Snow, heavy fog, frost, and other weather variables did not occur with the frequency and/or intensity to make interval by interval analysis practical. The influence of these conditions will be commented upon in the findings but they cannot be considered to afford a basis for anything more than very limited generalizations.

Findings

A. Wet Weather

The figures stated in the following tables are based upon a comparison of the frequency of traffic casualties in the City of Seattle during rainfall and dry weather. In each instance the comparisons were made by month, day or week, and time interval. The proportions are stated in decimals with 1.00 representing the average during dry weather.

Table III

Weekday Ratios of Traffic Casualties During Rainfall

October, November, and December of 1954 and 1955

Interval of Day by Year

Amount of rain per hour	12am-6:59am		7am-9am		9am-3:59pm		4pm-5:59pm		6pm-11:59pm	
	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955
Trace-.009 inches	1.4	1.3	1.2	1.7	1.5	1.6	2.2	1.8	2.0	1.7
.01-.049 inches	1.6	2.2	3.0	2.3	2.3	1.7	1.8	2.0	2.0	2.8
.05 inches plus	2.5	2.1	4.1	3.0	—	2.8	2.5	2.2	1.9	2.1

Table IV

Ratios of Traffic Casualties for Weekends and Holidays During Rainfall

October, November, and December of 1954 and 1955*

Interval of Day by Year

Amount of rain per hour	12am-6:59am		7am-11:59am		Noon-5:59pm		6pm-11:59pm	
	1954	1955	1954	1955	1954	1955	1954	1955
Trace-.009 inches	1.3	1.3	1.2	1.5	1.4	1.0	1.9	1.8
0.1 inches or more	1.5	1.5	1.7	1.6	2.0	1.9	2.3	2.0

* In terms of traffic characteristics and functions there would be good reasons for differential treatment of Saturdays, Sundays, and holidays. However, the sample of days with rainfall was inadequate for this type of analysis.

Table V

Consolidated Ratios of Traffic Casualties During Rainfall

October, November, and December of 1954 and 1955

Amount of rain per hour	Weekdays		Weekends and Holidays	
	1954	1955	1954	1955
Trace-.009 inches	1.66	1.61	1.45	1.42
.01-.049 inches	2.14	2.07		
			1.88	1.64
.05 inches plus	2.48	2.26		

Tables III and IV show greater differences between years than does Table V. This is apparently a result of the size of the samples from which the data was drawn. When this data was consolidated in Table V, there was only a slight difference between years. The increase in casualties during wet weather in 1954 was consistently greater than under comparable conditions during 1955. During this three month interval of 1955, exposure of traffic to conditions of precipitation was much greater than during the same interval in 1954. The total precipitation during the last three months of 1954 was 12.06 inches as contrasted to a total of 21.12 inches of precipitation during the same months of 1955. It would appear that with increased exposure there is a slight decrease in the effects of precipitation upon traffic casualties.

As a test of the importance of relative exposure to wet weather, the study was extended to include the entire year of 1955. Table VI is a comparison of the relative frequency of traffic casualties during wet weather by the quarter of the year.

Table VI

Ratio of Traffic Casualties During Rainfall

by Quarter of the Year, 1955

Amount of rain per hour	Jan.-Mar. Week days	Jan.-Mar. Sat. Sun.	April-June Week days	April-June Sat. Sun.	July-Sept. Week days	July-Sept. Sat. Sun.	Oct.-Dec. Week days	Oct.-Dec. Sat. Sun.
Trace-.009 inches	1.66	1.41	1.73	1.57	1.79	1.52	1.61	1.42
.01-.049 inches	2.64	1.68	2.26	1.82	2.78	2.33	2.07	1.64
.05 inches plus							2.26	

The total rainfall for 1955 was 35.59 inches. Of this amount, 6.42 inches fell during the first quarter of the year; 5.50 inches during the second quarter; 2.65 inches during the third quarter; and 21.12 inches during the last quarter. With the exception of the first two quarters of the year, consistent seasonal differences are apparent both in the amount of rain and the relative frequency of traffic casualties during rain. However, the major differences in rainfall by season were accompanied by only minor changes in the frequency of traffic casualties during rain.

During rain that had been preceded by seven days or more of dry weather, traffic casualties were 17 per cent more frequent

. . . Failure to adjust driving to hazards biggest headache

than the average for comparable conditions at all other times. During the first measurable rain after a month of dry summer weather casualties were 35 per cent above the annual average for comparable weather conditions.

B. Dry Weather

1. The basic assumptions upon which this study rests are that daily variations in the frequency of traffic casualties would generally conform to the normal curve of probability and that the mean frequency of dry weather traffic casualties would differ significantly from the mean frequency of wet weather casualties.

During the 185 days during 1955 when there was no measurable precipitation in Seattle, there was not a single day when the deviation from the average for dry weather was as great as the mean deviation during even those intervals with light showers.

2. On dry days preceded by days with measurable rainfall there are apparent adverse after-effects of the rain. Comparing the first day after rain with longer intervals of dry weather, it was found that the mean frequency of traffic casualties on the first day of dry weather was .07 per cent above the mean for the total of the dry days, .08 per cent above the mean for the second through the seventh dry days, and 11 per cent above the mean for eight days or more of dry weather. Using the formula: $Oo = \sqrt{O_1^2/N_1 + O_2^2/N_2^2}$ it was found that the statistical probability that the difference between the means for first day of dry weather and the second through seventh day could occur by chance was less than one in 100; the probability that the difference between the mean for first day of dry weather and the mean for eight days or more of dry weather could occur by chance was less than one in 350.

Since it is apparent that on any day immediately following rain that traffic casualties are above normal for dry weather, it would seem that the adverse effects of rain extend into dry weather, reducing the difference between dry weather and wet weather traffic casualties. Therefore it is apparent that the influence of precipitation upon traffic casualties is both broader and more intense than the statistics would otherwise indicate.

C. Snow

During 1955 there were three days with snowfall in excess of one inch recorded in Seattle, and more than 20 days with lesser amounts. However, it is impossible to adequately appraise the effects of light snow since there were major variations in its intensity and duration within even small sections of the city. Snow that melted immediately after falling in most of the city would sometimes remain for hours, or even days, on the hilltops. It is not possible to use such limited experience as a basis for statistical generalization, but the evidence is strong enough to suggest that there are certain critical factors in the influence of snow upon the frequency of local traffic casualties:

1. To differ in effect from rain, snow must be accompanied by temperatures sufficiently low that the snow forms a coating upon road surfaces.

2. The time of day at which the snow begins is apparently a factor of major importance in the degree of influence that it has upon traffic.

(The first heavy residual snow of the winter season of 1955-1956 occurred during the early morning hours of November 11, 1955. Traffic casualties during that day were 35 per cent above normal. Heavy snow that began during the early afternoon on November 17, 1955, and December 11, 1955, was accompanied by casualty increases of more than 1,000 per cent.)

3. The longer that snow remained on road surfaces, the less influence it exerted as a traffic hazard. On those occasions when residual snow was general for more than 24 hours, traffic casualties rapidly declined until they approached the norms for dry weather.

D. Other Weather Conditions

An interval by interval analysis of either the initial or cumulative effects of heavy fog, heavy frost, or heavy dew was not possible since none of these conditions were sufficiently general, frequent, or intense to offer a basis for systematic observation and analysis.

Conclusions

A. The results of this study indicate that during wet weather the failure of Seattle drivers to adjust their driving to the hazards imposed by these conditions outranks all other traffic hazards combined.

Some of the most dramatic local traffic emergencies occur under certain snowy conditions. However, the elements of surprise and novelty are apparently necessary to these gross variations. When surprise and novelty are not effective, snow does not seem to constitute as great or as consistent a traffic hazard as does rain. Furthermore, in terms of the relative frequency of occurrence, rain is of far greater local importance than snow or ice.

B. It seems apparent that most drivers base their driving habits upon the visibility and road surface conditions that exist during dry weather. The changes that occur during snow are sufficiently dramatic that it soon becomes apparent to most drivers that, in effect, they are driving on strange and dangerous streets. The changes that occur with rain apparently are not generally recognized as constituting a serious traffic hazard. Consequently, many drivers fail to make sufficient allowances for the poor visibility and slippery road conditions that exist during rainy weather.

The relative decrease in the frequency of traffic casualties during fall and winter rains, as contrasted to the annual average under comparable weather conditions, would seem to indicate that during prolonged periods of wet weather the drivers show evidence of some learning and adjustment to the hazards of wet weather. However, this seasonal difference in the impact of wet weather accounted for only a fractional difference in the proportion of traffic casualties, so the learning and adjustment that did take place were entirely inadequate. Also, the improvement in wet weather driving after prolonged periods of rain was partly offset by the negative adjustment that was apparent in the high frequency of casualties immediately after rain.

C. Under snowy conditions most drivers plan and adjust their driving to the hazardous road conditions. A similar adjustment is indicated during rainy weather.

Limitations

1. The City of Seattle has certain characteristics, both in terms of climate and topography, that have influenced the findings of this study. While it is possible to draw some general inferences beyond the limits of this study, the values derived for various weather conditions are specific to the City of Seattle.

2. To make valid generalizations concerning the influence of weather upon traffic casualties on a national scale it would be necessary to make similar studies in a cross-section of cities of dissimilar climate and topography.

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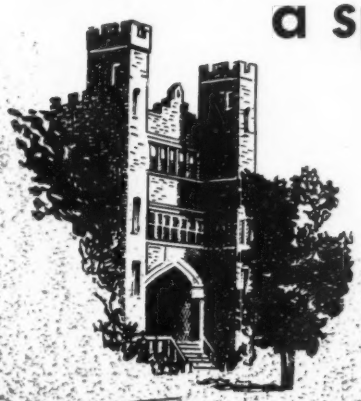

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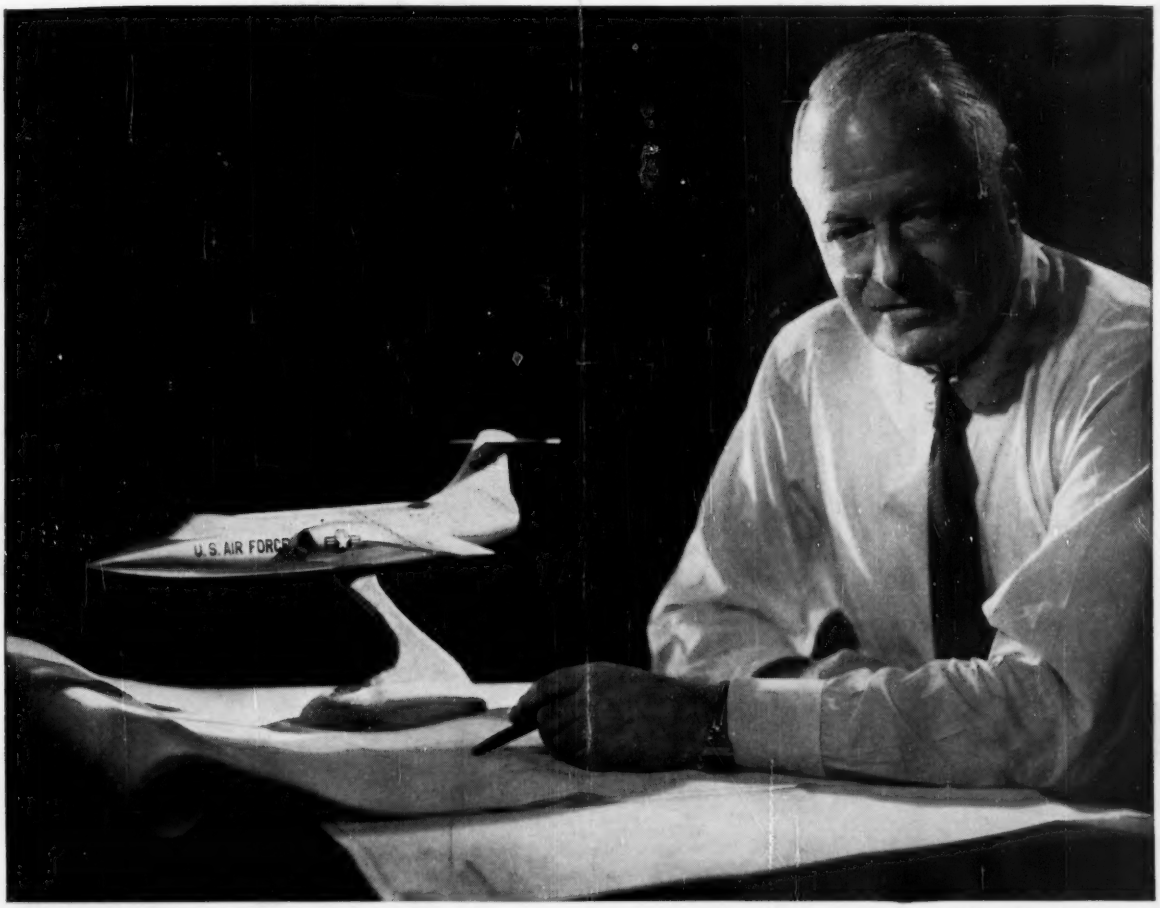

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